

DEC 17 1963

CRPL-F 231 PART B

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PART B
SOLAR - GEOPHYSICAL DATA

ISSUED
NOVEMBER 1963

U. S. DEPARTMENT OF COMMERCE
NATIONAL BUREAU OF STANDARDS
CENTRAL RADIO PROPAGATION LABORATORY
BOULDER, COLORADO

SOLAR - GEOPHYSICAL DATA

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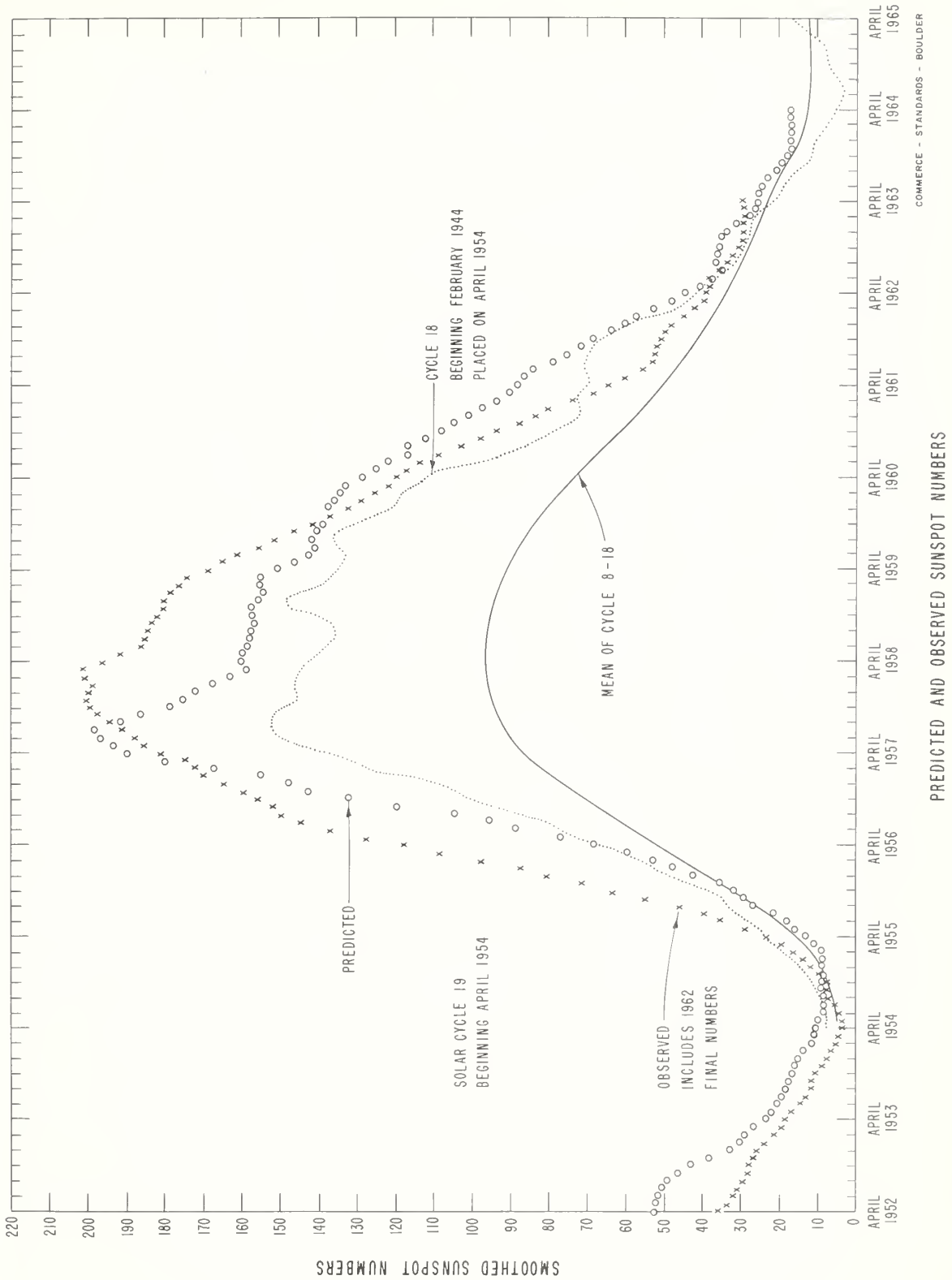
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The descriptive text has been republished this month, November, 1963.

Sept. 1963	American Relative Sunspot Numbers R _A '
1	20
2	15
3	41
4	52
5	37
6	22
7	12
8	13
9	15
10	19
11	22
12	31
13	42
14	68
15	60
16	65
17	64
18	56
19	45
20	50
21	49
22	39
23	35
24	26
25	20
26	12
27	0
28	5
29	0
30	0
Mean:	31.2

Oct. 1963	Zürich Provisional Relative Sunspot Numbers R _Z	Daily Values Solar Flux at 2800 Mc/s ARO-Ottawa Flux
1	0	68
2	0	69
3	9	70
4	8	71
5	0	73
6	15	77
7	22	79
8	37	85
9	37	86
10	32	87
11	40	87
12	39	84
13	42	84
14	51	86
15	49	88
16	52	87
17	50	84
18	40	83
19	29	88
20	37	89
21	35	94
22	45	96
23	50	94
24	51	94
25	53	96
26	56	96
27	50	88
28	24	84
29	54	85
30	58	85
31	45	82
Mean:	35.8	84



CALCIUM PLAGE AND SUNSPOT REGIONS

OCTOBER 1963

Oct. 1963	LAT.	MCMATH PLAGE NUMBER	RETURN OF REGION	CALCIUM PLAGE DATA						SUNSPOT DATA		
				CMP VALUES		HISTORY	AGE (ROTA- TIONS)	DATE FIRST SEEN	DURA- TION (DAYS)	CMP VALUES		HISTORY
				AREA	INT					AREA	COUNT	
30.9*	N18	6985 (1)	New	(200)	(1.5)	b - d	1	10/5	1			
2.0	S16	6982	New	(200)	(1)	b - d	1	10/4	2			
2.5	N08	6991 (1)	New	(300)	(1.5)	b - ℓ	1	10/7	1			
3.0	N01	6978 (1)	New	200	1.5	b - d	1	10/2	1			
3.0	S13	6988	New	(300)	(1.5)	b \nearrow ℓ	1	10/6	2			
3.2	S09	6977	New	100	1	b \wedge d	1	10/1	3			
3.8	N61	6983 (1)	New	200	1.5	b - d	1	10/4	1			
4.2	N26	6984 (1)	New	100	1.5	b - d	1	10/4	1			
5.4	N14	6992	New	(300)	(2)	b \nearrow ℓ	1	10/9	3			
7.1	S17	6981	New	100	1.5	b \wedge d	1	10/3	4			
8.7	N09	6979	New	1000	2.5	ℓ \searrow ℓ	1	10/2	13			
10.1	N30	6995	New	100	1.5	b \nearrow ℓ	1	10/11	4			
10.3	S04	6996	New	(300)	(2.5)	b \nearrow ℓ	1	10/13	3			
12.2	N09	6986	6960	1700	3.5	ℓ \nearrow ℓ	6	10/5	14	240	1	ℓ - ℓ
12.2	N34	6990 (2)	New	700	3.5	ℓ - ℓ	1	10/7	12	170	3	ℓ - ℓ
12.6	S12	6987	6961	800	2.5	ℓ - ℓ	3	10/6	13			
13.6	S05	6989	6961	1000	3	ℓ - ℓ	3	10/7	13			
14.5	S12	6998	New	100	2.5	b \nearrow d	1	10/17	~ 2			
14.9	N04	6997	New	1000	3.5	b \nearrow ℓ	1	10/13	8	180	6	b \nearrow ℓ
16.6	S06	7001 (1)	New	(100)	(1.5)	b - ℓ	1	10/20	1			
17.2	N14	6993	6964	2900	3	ℓ - ℓ	4	10/10	14	70	4	b \wedge d
17.6	S04	6999	New	200	2.5	b - d	1	10/17	~ 2			
18.0	N27	6994	6969	700	3	ℓ - ℓ	2	10/11	13	100	1	ℓ \searrow d
19.6	S05	7004 (1)	New	(200)	(1.5)	b - d	1	10/22	1			
19.7	S31	7007 (1)	New	(300)	(2)	b - d	1	10/23	1			
20.2	N25	7002	New	100	2	b \nearrow ℓ	1	10/20	6			
20.9	S19	7008	New	(200)	(2)	b \nearrow ℓ	1	10/23	5			
21.4	N45	7005	New	100	1.5	b \wedge d	1	10/22	2			
21.7	N09	7006	New	200	2	b - d	1	10/22	2			
21.9	N08	7000 (1)	New	(200)	(1.5)	b - d	1	10/17	1			
24.5	S11	7010	New	(200)	(2.5)	b \nearrow ℓ	1	10/26	5			
26.4	N12	7003	6980	5500	4	ℓ \nearrow ℓ	2	~ 10/19	15	1370	11	ℓ \searrow ℓ
26.5	S21	7009	New	100	2.5	b \wedge d	1	10/24	3			
30.1	N34	7016 (1)	New	(200)	(1)	b - d	1	11/1	1			
30.8	N02	7013	New	1000	3	b \nearrow ℓ	1	10/28	> 7	360	5	b \nearrow ℓ
30.9	N10	7011 (1)	New	(100)	(1.5)	b - d	1	10/27	1			
31.9	N10	7012	6992	300	1.5	ℓ \searrow d	2	10/26	8			

(1) These are all small and very ephemeral, lasting for only one day.

(2) Region 6990 is a new plage belonging to the new solar cycle.

COMMERCE - STANARDS - BOULDER

* September, 1963

MT. WILSON MAGNETIC CLASSIFICATIONS OF SUNSPOTS

11b

OCTOBER 1963

Oct. 1963	TIME MEAS. UT	LAT	MER DIST	TYPE	Oct. 1963	TIME MEAS UT	LAT	MER DIST	TYPE
1	No Spots				15	1835	N08	W50	α_p
2	1600	N12	W38	α_f			N34	W49	α_f^*
		N07	W33	α_p			N02	W14	β_p
3-4	No Spots						N13	E25	β_f
5	No Obs.						N23	E28	α_f
6	2210	N07	E70	β_f	16-23	No Obs.			
7	2155	N34	E50	α_f^*	24	2325	S10	W46	α_p
		N08	E56	β			N12	E14	α_p
8	1845	N34	E41	β_p^*			N12	E23	β_f
		N07	E45	β	25	2350	S10	W60	α_p
9	1725	N34	E29	β_p^*			N12	E01	α_p
		N07	E32	β_p			N12	E08	β_f
10	2345	N15	W73	β_f	26	1555	S10	W69	α_p
		N07	E13	β_p			N12	W07	α_p
		N33	E14	β_p^*			N12	W00	β_f
11	No Obs.				27	No Obs.			
12	2345	N07	W13	α_p	28	2130	S10	W60	β
		N33	W12	β_p^*			N12	W38	β_p
		N13	E58	α_f			N12	W23	α_f
		N23	E63	α_f			N01	E24	β_p
13	2345	N07	W26	α_p	29	1735	S10	W71	β_f
		N33	W27	α_f^*			N12	W50	β_p
		N03	E11	β			N12	W36	α_f
		N23	E51	α_f			N01	E13	β
14	1800	N08	W37	α_p			N10	E44	β_f
		N34	W35	α_f^*	30	2205	N11	W68	α_p
		S07	W17	α_f			N00	W04	β
		N03	W00	β			N08	E26	β
		N10	E37	α_f	31	1740	N11	W79	α_p
		N23	E41	α_f			N00	W15	β
							N07	E13	β_p

*New Cycle.

COMMERCE - STANDARDS - BOULDER

FINAL CORONAL LINE EMISSION INDICES

JULY 1963

CME July 1963	North East Quadrant (observed 7 days earlier)				South East Quadrant (observed 7 days earlier)				South West Quadrant (observed 7 days later)				North West Quadrant (observed 7 days later)			
	G ₆	G ₁	R ₆	R ₁	G ₆	G ₁	R ₆	R ₁	G ₆	G ₁	R ₆	R ₁	G ₆	G ₁	R ₆	R ₁
1	10	15	12	32	6	6	16	50	36	42	x	x	66	99	x	x
2	62	>146	29	62	13	14	23	33	18	21	12	16	18	39	12	14
3	20	28	4	5	18	28	5	7	16a	25a	9	10	6a	8a	10	14
4	8	11	13	16	16	39	16	20	11	14	16	22	3	5	15	20
5	6	9	9	12	12	31	12	16	x	x	x	x	x	x	x	x
6	22	28	17	20	32	51	16	24	10	14	x	x	9	14	x	x
7	44	59	23a	28a	30	45	20a	24a	12	22	18a	23a	16	28	19a	24a
8	23	43	9	16	7	9	8	10	6	11	6	6	49	84	7	12
9	64	123	10	17	11	22	14	20	4	6	18a	24a	72	160	21a	30a
10	63	98	x	x	6	20	x	x	2	2	17	22	4	5	19	32
11	42	64	x	x	5	8	x	x	6	8	20	26	33	59	20	28
12	51	72	13	27	13	26	18	23	7	11	18	24	40	70	15	41
13	33	73	31	52	3	8	37	40	3	3	17	20	19	38	15	36
14	16	39	17	22	2	8	19	25	4	6	16	20	7	9	27	56
15	35	40	x	x	21	25	x	x	27	30	9	12	33	40	9	12
16	10	15	22	28	6	6	18	20	4	6	21	24	7	8	20	28
17	8a	8a	18	30	5a	6a	12	16	5	8	28	36	7	11	36	60
18	6	8	26	39	4	5	15	18	17	59	x	x	6	11	x	x
19	x	x	x	x	x	x	x	x	8	11	x	x	24	59	x	x
20	59	130	29	48	5	14	17	20	8	11	17	24	35	76	15	22
21	54	129	23a	32a	8	14	18a	24a	9	11	14	18	21	36	21	28
22	27	39	9	15	1	2	8	11	4	6	x	x	21	31	x	x
23	44	92	x	x	5	11	x	x	18	50	22	24	28	56	25	48
24	7	12	14	32	2	3	10	13	7	15	18	24	33	53	15	28
25	58	101	17	36	8	17	10	12	3	4	x	x	7	12	x	x
26	37	59	14	28	7	11	13	16	5	5	10	12	14	22	11	16
27	7	12	16	20	4	6	13	15	24	31	x	x	69	102	x	x
28	9	18	10	14	4	5	13	15	9	12	5	8	20	38	8	15
29	47	53	6	8	38	44	6	8	6	7	6	10	7	7	10	13
30	10	17	17	24	11	17	20	24	7	12	8	11	7	8	10	11
31	9	15	20	24	10	19	15	18	9	10	11	15	8	8	8	10

x = no observations

* = yellow line emission

a = index computed from low weight data

COMMENTS - STANDARD - BOULDER

FINAL CORONAL LINE EMISSION INDICES

AUGUST 1963

CMP Aug 1963	North East Quadrant (observed 7 days earlier)				South East Quadrant (observed 7 days earlier)				South West Quadrant (observed 7 days later)				North West Quadrant (observed 7 days later)			
	G ₆	G ₁	R ₆	R ₁	G ₆	G ₁	R ₆	R ₁	G ₆	G ₁	R ₆	R ₁	G ₆	G ₁	R ₆	R ₁
1	23	75	x	x	12	17	x	x	3	3	x	x	14	17	x	x
2	8	11	x	x	7	8	x	x	6	15	21	24	14	21	25	46
3	18	25	18	24	7	11	16	20	3	5	7	10	14	11	7	8
4	37	56	19	28	2	3	15	20	9	12	11	12	46	93	7	15
5	73	120	x	x	4	8	x	x	2	3	x	x	3	4	x	x
6	46	92	32	66	4	11	19	22	6	6	25	36	27	42	21	32
7	18	30	15	20	5	7	20	24	4	8	19	28	30	39	12	20
8	10	14	x	x	3	3	x	x	4	8	24	30	25	33	17	27
9	19	31	24	48	3	7	15	20	6	14	35	52	10	14	19	44
10	64	106	x	x	28	38	x	x	4	13	x	x	13	29	x	x
11	10	12	10	17	11	16	6	8	4	8	28	34	9	14	23	32
12	5	6	12	18	3	6	8	9	5	8	27	32	8	11	35	40
13	7	9	16	20	6	8	13	15	8	11	6	10	14	19	4	9
14	8	8	17	22	10	14	15	19	x	x	x	x	x	x	x	x
15	8	11	10	11	4	8	11	14	19	25	x	x	21	29	x	x
16	13	18	26	40	6	15	22	26	18	29	x	x	11	15	x	x
17	3	4	13	15	4	4	11	20	47	115	33	56	13	17	24	36
18	16	21	16	20	19	43	20	33	x	x	x	x	x	x	x	x
19	15	21	x	x	12	20	x	x	6	8	22	36	3	7	x	x
20	80	146	30	96	13	31	31	35	x	x	x	x	x	x	x	x
21	53	67	16	30	15	53	18	24	17	28	13	15	25	31	9	12
22	34	42	15	30	7	14	17	20	17	20	x	x	16	22	x	x
23	92	140	11	17	19	25	11	19	33	54	13	31	31	38	x	x
24	50	91	8	14	27	49	10	16	x	x	x	x	x	x	x	x
25	22	36	22	28	25	45	35	55	18	34	7	18	19	22	x	x
26	7	11	24	30	11	14	30	36	x	x	24	26	x	x	22	28
27	10	11	4	8	17	22	6	16	8	11	23	28	8	11	21	30
28	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
29	4	6	x	x	4	4	x	x	15a	22a	17a	28a	38a	73a	27a	28a
30	16	38	x	x	3	7	x	x	6	8	16	20	22	43	13	18
31	48	90	28	40	3	6	27	31	5	6	18	20	24	45	16	22

x = no observations

* = yellow line emission

a = index computed from low weight data

COMMERCE · STANDARDS · BOULDER

FINAL CORONAL LINE EMISSION INDICES

SEPTEMBER 1963

CMP Sept 1963	North East Quadrant (observed 7 days earlier)				South East quadrant (observed 7 days earlier)				South West quadrant (observed 7 days later)				North West quadrant (observed 7 days later)			
	G ₆	G ₁	R ₆	R ₁	G ₆	G ₁	R ₆	R ₁	G ₆	G ₁	R ₆	R ₁	G ₆	G ₁	R ₆	R ₁
1	x	x	x	x	x	x	x	x	5	17	22	28	43	78	21	44
2	4	6	4	5	2	2	5	7	6	14	29	42	31	59	17	36
3	x	x	x	x	x	x	x	x	11	16	28	66	40	115	14	15
4	26	45	9	12	6	6	10	14	10	12	17	24	8	20	17	46
5	22	31	12a	18a	7	20	12a	16a	3	3	8	8	13	20	7	10
6	17	19	14	19	12	13	10	14	8	11	9	12	8	9	10	12
7	14	16	x	x	x	x	x	x	x	x	x	x	x	x	x	12
8	11	17	12	15	6	8	7	9	4	5	11	15	6	7	14	17
9	7	8	36	43	7	8	36	44	x	x	x	x	x	x	x	x
10	14	25	25	36	5	8	27	36	x	x	x	x	x	x	x	x
11	x	x	x	x	x	x	x	x	6	11	16	24	6	8	21	39
12	25	31	26a	32a	19	37	26a	32a	10	18	9	10	6	6	7	10
13	10	16	16	20	19	36	16	22	62	99	x	x	26	66	x	x
14	15	29	17	25	25	60	16	18	74	140	x	x	25	39	x	x
15	18	31	17	48	10	31	18	34	62	106	27	36	47	95	15	16
16	49	101	11	28	36	95	12	12	49	87	15	21	49	84	12	12
17	18	22	13	15	13	30	19	34	27	39	19	26	26	39	11	16
18	9	12	7	9	6	9	9	11	12	20	27	32	40	50	24	34
19	38	59	7	8	21	64	9	12	10	16	8	10	21*	30	8	10
20	31*	44	10	12	23	74	13	28	22	81	13	16	43	95	23	37
21	x	x	x	x	x	x	x	x	11	20	24	32	33	59	18	28
22	6	8	11	16	8	8	11	15	5	6	34	38	17	36	44	76
23	x	x	x	x	x	x	x	x	3	5	19	24	16	45	26	42
24	x	x	x	x	x	x	x	x	2	5	x	x	10	17	x	x
25	11	17	27	32	8	14	24	37	2	4	11	13	7	9	8	12
26	8	15	14	20	4	5	16	25	11	21	9	16	14	18	9	16
27	x	x	x	x	x	x	x	x	3	5	6	8	9	12	1	4
28	36	64	x	x	3	4	x	x	4	8	7	12	8	16	8	12
29	19	28	25	47	6	8	32	48	4	6	9	12	14	15	6	8
30	22	34	16	24	3	3	16	20	2	2	8	12	2	2	8	8

x = no observations

* = yellow line emission

a = index computed from low weight data

CONSERVE - STANDARDS - BOULDER

PROVISIONAL CORONAL LINE EMISSION INDICES

OCTOBER 1963

CMP Oct 1963	North East Quadrant (observed 7 days earlier)				South East Quadrant (observed 7 days earlier)				South West Quadrant (observed 7 days later)				North West Quadrant (observed 7 days later)			
	G ₆	G ₁	R ₆	R ₁	G ₆	G ₁	R ₆	R ₁	G ₆	G ₁	R ₆	R ₁	G ₆	G ₁	R ₆	R ₁
1	18	31	20	28	3	6	29	35	8	11	11	12	10	18	9	12
2	7	11	25	30	2	6	28	36	6	6	10	16	8	12	12	15
3	5	6	10	13	3	4	9	10	x	x	18	20	4	6	13	16
4	9a	25a	14	20	x	x	23	28	x	x	x	x	x	x	x	x
5	7	8	22a	24a	2	3	26a	40a	x	x	21	24	x	x	27	36
6	6	6	27	32	1	3	30	42	4	6	17a	24a	5	14	18a	24a
7	9	11	19	28	4	6	16	20	4	6	24	32	11	20	23	32
8	25	73	18	28	4	6	15	28	x	x	x	x	x	x	x	x
9	16	33	10	20	2	4	9	10	15	25	18a	24a	15	17	19a	30a
10	16	21	13	20	19	33	10	12	x	x	15	17	x	x	14	16
11	13	21	9	12	22	34	11	16	x	x	x	x	x	x	x	x
12	16	32	10	20	21	33	12	19	x	x	x	x	x	x	x	x
13	40	92	13	30	29	48	15	32	32	80	15	25	20	41	12	15
14	4	7	8	9	4	8	15	28	25	56	20	24	42	78	35	72
15	29	39	22	34	14	24	13	18	14	28	16	20	46	87	25	43
16	36	49	26	61	14	18	12	12	x	x	x	x	x	x	x	x
17	68	126	41	114	14	20	20	40	9	20	x	x	30	50	12	18
18	x	x	x	x	x	x	x	x	5	8	24	33	37	67	33	44
19	x	x	29	32	x	x	22	28	7	11	x	x	18	25	x	x
20	14	17	27a	32a	5	6	25a	34a	19	50	45	70	13	17	24	32
21	15	20	31	40	4	6	32	40	x	x	36	66	x	x	22	28
22	x	x	22a	32a	x	x	31a	38a	x	x	x	x	x	x	x	x
23	10	11	15a	19a	3	6	21a	30a	14	31	29	48	13	17	15	18
24	6	11	15	20	x	x	17	19	x	x	x	x	x	x	x	x
25	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
26	x	x	x	x	x	x	x	x	6	17	18	22	51	84	17	28
27	19	43	22	39	5	12	15	20	x	x	x	x	x	x	x	x
28	12	17	19	24	4	6	22	27	x	x	x	x	x	x	x	x
29	8	8	23	28	3	6	27	30	18	35	23	37	12	17	10	12
30	x	x	x	x	4	x	x	x	8	24	13	18	8	18	16	28
31	6	11	x	x	4	4	x	x	6	12	x	x	8	21	x	x

x = no observations

* = yellow line emission

a = index computed from low weight data

COMET - STANDARDS - BOULDER

SOLAR FLARES

OCTOBER 1963

OBSERVATORY	DATE OCT 1963	OBSERVED UNIVERSAL TIME		LOCATION			DURA- TION — MINUTES	IM- POR- TANCE	OBS. COND.	TIME — U T	MEASUREMENTS			PROVISIONAL IONOSPHERIC EFFECT	
		START	END	MAX. PHASE	APPROX. LAT.	MER DIST					McMATH PLAGE REGION	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.		MAX. WIDTH He
<input type="checkbox"/> MCMATH <input type="checkbox"/> SAC PEAK <input type="checkbox"/> MCMATH <input type="checkbox"/> MCMATH <input type="checkbox"/> MCMATH <input type="checkbox"/> MCMATH <input type="checkbox"/> MCMATH <input type="checkbox"/> MCMATH <input type="checkbox"/> MCMATH <input type="checkbox"/> MCMATH <input type="checkbox"/> MCMATH <input type="checkbox"/> MCMATH <input type="checkbox"/> MCMATH <input type="checkbox"/> MCMATH <input type="checkbox"/> MCMATH	01	0035	0700	NO FLARE	PATROL										
	02	0000	0005	NO FLARE	PATROL										
	02	0040	0650	NO FLARE	PATROL										
	02	0655	0700	NO FLARE	PATROL										
	02	0870	0825	NO FLARE	PATROL										
	02	0830	0845	NO FLARE	PATROL										
	02	0850	0910	NO FLARE	PATROL										
	02	0920	0950	NO FLARE	PATROL										
	02	0955	1000	NO FLARE	PATROL										
	02	1005	1045	NO FLARE	PATROL										
	02	1229 E	1326	1321	N11 W38		6980		1	1300	.50	.60		16	
	02	1310 F	1329	1341	N12 W36				3		.14	.15			
	02	1336	1435	1400	N11 W38		6980		1	1341	.40	.50			
	02	1376	1435	1400	N11 W38				3		.14	.16		16	
	02	1400	1420	1408	N12 W38				1	1527	.30	.40			
	02	1519	1538		N11 W39		6980		1						
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SOLAR FLARES

OCTOBER 1963

OBSERVATORY	DATE	OBSERVED TIME		LOCATION		DURATION — MINUTES	IM- POB- TANCE	OBS. COND.	MEASUREMENTS			PROVISIONAL IONOSPHERIC EFFECT
		START	END	APPROX. LAT.	MER. DIST.				TIME — U T	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	
SAC PEAK LOCKHEED	OCT 1963											
SAC PEAK MCMATH MCMATH MCMATH MCMATH MCMATH MCMATH MCMATH MCMATH MCMATH MCMATH MCMATH MCMATH MCMATH	06	2200	2325	2313 U	N06 E25	6979	1	3	4.29	4.31		19
	06	2201	2250	2228	N05 E23		1-	2	2228	1.70	1.70	20
	07	0100	0645	NO FLARE	PATROL							
	07	0800	0810	NO FLARE	PATROL							
	07	1020	1025	NO FLARE	PATROL							
	07	1045	1100	NO FLARE	PATROL							
	07	1110	1115	NO FLARE	PATROL							
	07	1200	1210	NO FLARE	PATROL							
	07	1225	1230	NO FLARE	PATROL							
	07	1648	1702	1653	N34 E57		1-	3		.14	.21	16
	07	1850	1703	1654	N35 E58	6990	1-	2	1654	.20	.40	
	07	1944	2105	2000	N35 E56	6990	1-	2	2000	.20	.40	
	07	1950	2124	2020 U	N34 E55		1-	3		.29	.39	16
	07	2341	2355 D	2355 D	N34 E53		1-	3		.43	.58	16
SAC PEAK	07	2355	2400	NO FLARE	PATROL							
	08	0035	0620	NO FLARE	PATROL							
	08	0910	0920	NO FLARE	PATROL							
	08	0925	0935	NO FLARE	PATROL							
	08	0945	0950	NO FLARE	PATROL							
	08	0955	1005	NO FLARE	PATROL							
	08	1010	1020	NO FLARE	PATROL							
	08	1040	1110	NO FLARE	PATROL							
	08	1120	1130	NO FLARE	PATROL							
	08	1135	1150	NO FLARE	PATROL							
SAC PEAK MCMATH	08	2317	2323	2319	N06 F43		1-	3		.23	.25	16
	08	2355	2400	NO FLARE	PATROL							
	09	0035	0540	NO FLARE	PATROL							
	09	0835	0845	NO FLARE	PATROL							
	09	0910	0930	NO FLARE	PATROL							
	09	1100	1220	NO FLARE	PATROL							
	09	1442	1515	1450	N05 W13	6979	1	2	2.15	2.10		18
	09	1445	1545		N05 W12	6979	1-	2	1451	.80	.80	
	10	0110	0700	NO FLARE	PATROL							
	10	0820	0830	NO FLARE	PATROL							
MCMATH MCMATH MCMATH MCMATH MCMATH MCMATH MCMATH MCMATH MCMATH MCMATH	10	0855	0925	NO FLARE	PATROL							
	10	1125	1130	NO FLARE	PATROL							
	10	1240	1245	NO FLARE	PATROL							
	10	1450	1527	1500	N34 E20	6990	1-	2	1500	.30	.30	
	10	1456	1501	1457	N05 E18	6986	1-	2	1457	.20	.20	
	10	1550	1556	1552	N05 E17	6986	1-	2	1552	.20	.20	
	10	1555	1615	1605	N15 W72	6992	1-	1	1605	.20	.60	
	10	1735	1820	1740	N15 W73	6992	1-	1	1740	.40	1.20	
	11	0045	0052 D	0050	N16 E90		1-	1	0050	.30	1.50	30
	11	0050	0645	NO FLARE	PATROL							
CAPRI-S	11	0820	0910	NO FLARE	PATROL							
	11	1228 F	1250 D		N15 E77		1-	3	1228	.40	1.60	

SOLAR FLARES

OCTOBER 1963

OBSERVATORY	DATE	OBSERVED UNIVERSAL TIME			LOCATION			DURA- TION — MINUTES	IM- POR- TANCE	OBS. COND.	MEASUREMENTS				PROVISIONAL IONOSPHERIC EFFECT	
		START	END	MAX. PHASE	APPROX. LAT.	MER DIST.	MC-MATH FLARE REGION				TIME — UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX WIDTH H ₃₀₀₀		MAX INT. %
MCMATH	11 OCT 1963	11 1230 E	1244		N16 E80		6993		1-	2	1239	.30	1.50			
		11 1655	1700	NO FLARE	PATROL											
		11 2115	2230	NO FLARE	PATROL											
		11 2355	2400	NO FLARE	PATROL											
ONDREJOV	12	0015	0630	NO FLARE	PATROL											
	12	1027 E	1037 D		N03 E30				1-	3	1028			1.80		
WENDEL	13	0055	0615	NO FLARE	PATROL											
	13	0921 E	0926 D		S03 W39				1-	2	2343	1.60	1.60		30	
	13	2331	0030 D	2343	N29 W18				1-	2		.43	.47		15	
	13	2332 U	2335 D		N35 W24				1-	2	2341	2.50	2.70			
MANILA	13	2334 E	2357	2341	N35 W23		6990	23 D	1	2						
	14	0030	0605	NO FLARE	PATROL					3						
BUCHARST	14	0700	0728		N35 W30				1-	3						
	14	0715	0922		N04 E06				1-	3						
	14	0829	0903		N35 W30				1-	3						
	14	1148 E	1154 D		N04 W10				1-	3		1.50	1.50			
SALTSJOBADN	14	1458	1500	1459	N03 E03		6997		1-	1	1459	.10	.10			
	14	1502	1513	1508	N03 W02				1-	2	1511	.29	.29		18	
	14	1507	1518		N03 E03		6997	35 D	1-	1	1514	.10	.10			
	14	1512 E	1547	1659	N05 E05		5997		1-	2		2.50	3.00		15	
MCMATH	14	1657	1720	1701	N03 W02				1-	2	1701	.37	.37		20	
	14	1658	1711	1701	S02 W01		6997		1-	2	1712	.60	.60		15	
	14	1659	1720 D		N03 E03				1-	1	1712	.50	.50		20	
	14	1735	1740 D	1740 U	N03 W02		6997		1-	2	1741	.29	.29		15	
MCMATH	14	1738	1837	1741	N03 E02		6997		1-	2		.80	.80		16	
	14	1815	1825	1818	N03 W03				1-	2		.21	.21		15	
	14	1838	1902	1841	N03 W03		6997		1-	2		.62	.60		20	
	14	1841	1925	1846	N03 W03				1-	2	1858	.80	.80		20	
MCMATH	14	1842	1903	1850	S02 W01				1-	2	1850	.40	.40		20	
	14	1842	1903	1850	S02 W01				1-	2	1850	.40	.40		20	
	14	1932	1945	1936	S02 W01				1-	2	1936	.90	.90		16	
	14	1932	1950	1935	N02 W02				1-	2		1.16	1.13		16	
MCMATH	14	1933	1948	1934	N03 W04		6997		1-	2	1934	1.00	1.00		16	
	14	1952	2007	1958	N03 W04				1-	2		1.01	.99		16	
	14	1954	2030	1959	N03 W04		6997		1-	2	1959	.60	.60			
	14	2042	2050	2045	N03 W04		6997		1-	2	2045	.20	.20		10	
MCMATH	14	2052	2108	2056	S02 W01				1-	2	2056	.80	.80		17	
	14	2053	2100 D	2055	N03 W04		6997		1-	2	2055	.70	.70		20	
	14	2053	2102	2057	N03 W03				1-	2		.35	.35		17	
	14	2255	2331	2302	S02 W01				1-	2	2302	.90	.90		20	
MANILA	14	2255	2331	2323	S02 W01				1-	2		.50	.50			
	14	2324 E	2331		N03 W04				1-	2	2325					
	14	2324 E	2331		N03 W04				1-	2						
	14	2324 E	2331		N03 W04				1-	2						
MANILA	15	0050	0655	NO FLARE	PATROL				1-	2	2325	.50	.50			
	15	0054	0101	0057	N03 W06				1-	2	0058	.35	.35			
	15	0213	0245	0219	N03 W05				1-	2	0220	.50	.50			
	15	0504 E	0510		N03 W06				1-	2	0506	1.00	1.00			
BUCHARST	15	0735	0739	0739	N05 W09				1-	3	0738	.50	.50			
	15	0735 E	0743	0738	N03 W07				1-	2						

COMERCZ - STANDARDS - BOULDER

SOLAR FLARES

OCTOBER 1963

OBSERVATORY	DATE	OBSERVED UNIVERSAL TIME		LOCATION			DURATION — MINUTES	IM- POR- TANCE	OBS. COND.	MEASUREMENTS				PROVISIONAL IONOSPHERIC EFFECT	
		START	END	MAX. PHASE	APPROX. LAT.	MER. DIST.				MEAS. PLACE REGION	TIME — UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.		MAX. WIDTH H _{fo}
ZURICH BUCHARPEST ISTANBUL MCNATH ZURICH OTTAWA MCNATH SAC PEAK	15 OCT 1963	0743 E	0756		N05 W08	6997	13 B	1-	3	0743		2.00			
	15	0748	0818		N05 W08			1-	3						
	15	0752	0755		N04 W09	6997	3	1-							
	15	1413	1547	1414	N03 W14	6997		1-	2	1414	.50	.50			
	15	1425 E	1431		N05 W11	6997	6 D	1-	3	1425	2.00	2.00			
	15	1752	1803	1754	N03 W14			1-	3	1754	.87	.87			
	15	1752	1805	1754	N04 W14	6997		1-	1	1754	.40	.40			
	15	2055	2115	NO FLARE	PATROL										
	15	2118	2129 D	2125	N05 W15			1-	1		.43	.43		17	
	15	2130	2400	NO FLARE	PATROL										
MANILA MANILA MANILA MANILA WENDEL ONOREJOV HTE-PROVFN ZURICH CAPRI-S OTTAWA ONOREJOV MCNATH WENDEL OTTAWA OTTAWA SAC PEAK	16	0000	0635	NO FLARE	PATROL									G-SWF	
	16	0130	0145 C		N03 W19			1-	1	0140	1.00	1.00			
	16	0250	0301	0255	N03 W19			1-	2	0255	.60	.60			
	16	0612	0621	0615	N08 W50			1-	2	0615	.40	.50			
	16	0709	0717	0712	N03 W20			1-	2	0712	.35	.35			
	16	0729	0748	0731	N03 W20			1-	2	0731	.25	.25			
	16	0730 F	0814 C		N03 W23	6997	44 C	1-	3	0953		3.00	1.80		
	16	0935	1000		N04 W24			1-							
	16	0949 F	0947 D		N04 W21			1-	2	0941	.90	1.00			
	16	1216 E	1318		N04 W23	6997	62 D	1-	2	1228	7.00	7.00			
OTTAWA ONOREJOV MCNATH WENDEL OTTAWA OTTAWA SAC PEAK	16	1223 E	1316 D		N05 W16	6997	53 D	1	3	1225	2.30	2.40			S-SWF
	16	1225	1256	1229	N02 W24	6997	31	2	1	1229	5.60	5.63			
	16	1228 E	1300		N04 W22	6997	72 D	1+	2	1230			3.00		
	16	1228 E	1330		N04 W24	6997	62 D	1	2	1228	2.50	2.80			
	16	1231	1332 D		N03 W24	6997	61 D	1+			9.00	9.00			
	16	1607	1622	1616	N01 W28			1-	2	1616	.47	.48			
	16	1642	1656	1653	N11 W51	6996	14	1-	2	1653	1.75	2.66			
	16	1657	1702 C		N11 W50			1-	2	1701	1.05	1.53			
	16	1850	2100	NO FLARE	PATROL										
	16	2103 E	2112	2105	N07 W20			1-	2		.72	.72		18	
MANILA BUCHARPEST ONOREJOV OTTAWA MCNATH CAPRI-S WENDEL MCNATH SAC PEAK	17	0000	0625	NO FLARE	PATROL										
	17	0627 E	0640		N03 W33			1-	1	0628	.25	.27			
	17	0640	0655	NO FLARE	PATROL			1-	2						
	17	0710	0720		N05 W35			1-	2						
	17	0728	0738		N05 W35	6997		1-	1				1.50		
	17	1340 E	1352 D		N05 W40	6997	13 D	1	1	1341	2.40	2.68			
	17	1343	1354 D	1346	N03 W40	6997	11 C	1	2	1346	.90	1.10			
	17	1343	1350	1344	N04 W40	6997		1-	3	1346	.50	.50			
	17	1343 E	1350		N04 W40		00 C	1-	2		3.00	3.00			
	17	1346 F	1514 C		N03 W40	6997		1-	2	1730	.40	.50			
SAC PEAK MCNATH MCNATH	17	1727	1755	1730	N04 W42	6997		1-	2		1.01	1.18		18	
	17	2100	2205	NO FLARE	PATROL										
	17	2207 E	2242 D	2238	N04 W45			1-	2						
	17	2355	2400	NO FLARE	PATROL										
	18	0025	0655	NO FLARE	PATROL										
MCNATH MCNATH	18	1625 F	1710 C		N14 W50	7003	45 C	1	2	1631					S-SWF
	18	1902	1945		N14 W50	7003		1-	2						

COMMENTS - STANDARD - BOULDER

SOLAR FLARES

OCTOBER 1963

OBSERVATORY	DATE	OBSERVED UNIVERSAL TIME		LOCATION		DURA- TION — MINUTES	IM- POR- TANCE	OBS. COND.	MEASUREMENTS			PROVISIONAL IONOSPHERIC EFFECT		
		START	END	APPROX. LAT.	MER. DIST.				TIME — UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.		MAX. WIDTH H _g	MAX. INT. %
MCMATH	OCT 18 1963	2006	2058 D	N16 E90	7003	52 D	1+	2	2010				S-SWF	
	18 2100	2400	NO FLARE	PATROL										
MANILA	18 2340	0010		N15 E90	7003	30	1	2	2350	2.00				
WENDEL	19 0000	0655					1-							
	19 1240 F	1255 D		N03 W68										
	19 1600	1625		NO FLARE										
LOCKHEED	19 1650	1725 D		N11 E90	7003	35 D	2	1	1657	1.20	.60			20
	19 1725	1730		NO FLARE										
	19 1740	1745		NO FLARE										
	19 1755	1905		NO FLARE										
	19 1940	2400		NO FLARE										
MANILA	20 0000	0600		NO FLARE			1-	2	0025	.30	1.50			
	20 0023 F	0030		N10 E90			1-	2	0228	.30	1.50			
MANILA	20 0223 E	0232		N13 E90		11 D	1-		0742	2.40				
HTE-PROVEN	20 0738 E	0749		N14 E80	7003		1-							
RUCHAREST	20 0801	0833		N12 E80			1-	2	0805	.20	.85			
MANILA	20 0802	0814		N12 E88			1-	2	0843	.30	3.00			
WENDEL	20 0842 E	0846		N12 E88			1-	2						
RUCHAREST	20 0851 F	0914 D		N12 E79	7003	23 D	1	2	0855	.90	2.50			
CAPRI-S	20 0852 E	0902		N16 E75	7003	14 D	1	3	0855	1.30		4.60		
ONDREJOV	20 0854 F	0924		N18 E70	7003	30 D	1+	3	0855	.60				
HTE-PROVEN	20 0855 E	0916		N15 E75	7003	21 D	1	1	0954	.80	1.70			
HTE-PROVEN	20 0951	0955		N15 E75			1-							
CAPRI-S	20 1200 F	1208 D		N12 E70			1-	3	1203					
	20 1805	1920		NO FLARE										
	20 1930	1900		NO FLARE										
SAC PEAK	20 2103	2118		N11 E73			1-	3		.99	1.86		19	
	20 2355	2400		NO FLARE										
MANILA	21 0025	0450		NO FLARE										
	21 0223	0241		0227	N11 E67		1-	2	0241	1.33	2.30			
RUCHAREST	21 0806 E	0830 D		0815	N12 E63	24 D	1	2	0815	.60	1.30			
HTE-PROVEN	21 0810	0847		N12 E67			1-		1231	1.20				
HTE-PROVEN	21 1226	1240		N14 E75	7003	14	1	3	1305	.70	1.36			
OTTAWA	21 1300	1311		N11 E71			1-		1315	.40				
HTE-PROVEN	21 1305	1329		N10 E59			1-	3	1312	.76	1.15			
OTTAWA	21 1309	1320		N10 E61	7003	16	1	3	1326	.90				
HTE-PROVEN	21 1323	1339		N14 E75			1	3	1344	1.00	3.00			
CAPRI-S	21 1323	1420 D		N13 E68	7003	57 D	1+	3	1338	1.40	2.56			
OTTAWA	21 1324	1357		N13 E69	7003	33	1	3	1338	.62	1.18		18	
SAC PEAK	21 1326	1342		N12 E71			1-	3	1343	1.20	.97		18	
HTE-PROVEN	21 1328	1417		N12 E70	7003	49	1	3		.56	4.00			
SAC PEAK	21 1334	1355		N10 E68			1-	3	1338	.30	.50			
ZURICH	21 1335 E	1407		N13 E67	7003	32 D	1	2	1448	.64	.90			
LOCARNO	21 1400 F	1415 D		N12 E67	7003	15 D	1	3	1455	.60	1.00			
HTE-PROVEN	21 1448	1510		N10 E56			1-	3						
OTTAWA	21 1453	1500		N10 E57			1-	3	1501					
CAPRI-S	21 1453	1511		N10 E54			1-	3						

SOLAR FLARES

OCTOBER 1963

OBSERVATORY	DATE	OBSERVED UNIVERSAL TIME		LOCATION		DURA- TION — MINUTES	IM- POR- TANCE	OBS. COND.	MEASUREMENTS				PROVISIONAL IONOSPHERIC EFFECT
		START	END	APPROX. LAT.	APPROX. MER DIST.				TIME — UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Ha	
ZURICH	21 OCT 1963	1453 E	1512	N10	E56	19 D	1	3	1455		2.00		S1-S-SWF
LOCKHEED	21	1911	1937 D	N09	E50		1-	1	1918	.90	1.10	10	
LOCKHEED	21	2011	2031	N16	E50		1-	2	2020	.30	.40	20	
MC MATH	21	2032 F	2040 D	N11	E62	9 D	1-	1	2036	.50	1.10		
HTF-PROVEN	22	0050	0700	NO FLARE									
CAPRI-S	22	1329	1534 D	N11	E52	125 D	2+	3	1350	5.10	8.80	360	
LOCARNO	22	1332	1532	N10	E54	120	2+	3	1444	4.00	6.80		
MC MATH	22	1340 F	1450 D	N12	E52	70 D	2	2					
MC MATH	22	1342 F	1450 D	N12	E58	68 D	2	2					
HTF-PROVEN	22	1355	1415	N09	E50		1-	1	1356	.70	1.20		
HTF-PROVEN	22	1358	1412	N10	E42		1-	1	1358	.40	.50		
CHDRE-JOV	22	1404 F	1456 D	N10	E54	52 D	2	1	1405	5.00	5.00		S1-S-SWF
ZURICH	22	1423 F	1455	N11	E51	33 D	1	3	1432	1.50	1.90		
MC MATH	22	1423 F	1410	N11	E53	107 D	2+	3	1433	4.19	5.28	2.30	
HTF-PROVEN	22	1424 F	1500	N08	E43	64 D	2	1	1433	.43	.50		
SAC PEAK	22	1426 F	1530 U	N10	E51		1-	1	1700	.30	1.10	10	
MC MATH	22	1656	1740 D	N14	E75		1-	1	1840	.50	.60		
MC MATH	22	1658	1704	N14	E77	6993	1-	1	1828	.30	.40		
LOCKHEED	22	1836	1846	N11	E44		1-	1	1903	.14	.17	15	
MC MATH	22	1837	1844	N12	E47	7003	1-	3	1946	.20	.30	16	
MC MATH	22	1900	1915	N12	E52	7003	1-	3	2004	.30	.40	18	
SAC PEAK	22	1901	1912	N10	E51		1-	1	2242	1.36	2.87		G-SWF
MC MATH	22	1944	1953	N12	E52	7003	1-	1	2245	2.00	2.50	30	
MC MATH	22	2001	2014 D	N12	E46	7003	1-	3	3.03	3.84			
SAC PEAK	22	2238	2250	N15	E76	6993	1	3					
LOCKHEED	22	2239	2258	N14	E80	5993	1	2	0307	.50	.60		
LOCKHEED	22	2239	2325	N11	E49	7003	1	2	1031	.60	1.10		
SAC PEAK	22	2240	2256	N10	E52	7003	1	3	0932	1.60	2.20		
MANILA	23	0025	0650	NO FLARE									
CAPRI-S	23	0305 E	0314	N07	E44		1-	1					
HTF-PROVEN	23	0926	0943	N11	E49		1-	3					
RUCHARFEST	23	0929	0946	N12	E42	7003	1	1					
RUCHARFEST	23	1030 F	1048 D	N16	E77	6993	1	1					
MC MATH	23	1145 F		N12	E46		1-	1					
MC MATH	23	1414	1427	N11	E43	7003	1-	2	1416	.60	.80		
MC MATH	23	1520	1538	N11	E43	7003	1-	2	1522	.20	.30	15	
SAC PEAK	23	1542	1549	N10	E38		1-	2		.21	.21		
MC MATH	23	1550 E	1559	N11	E43	7003	1-	2	1552	.30	.40		
MC MATH	23	1616	1642 D	N11	E40	7003	1+	2	1650	3.10	4.00		S-SWF
MC MATH	23	1642	1750	N11	E40	68		2					
SAC PEAK	23	1617	1721 D	N10	F41	64 D	1	2	2.45	2.74		18	
SAC PEAK	23	1628	1644 D	N08	E35		1-	2	.43	.45		17	
OTTAWA	23	1630	1641	N10	E35		1-	2	1637	.58	.62		
OTTAWA	23	1643	1704 D	N12	E40	7003	2	2	1658	4.84	5.43	20	
LOCKHEED	23	1649 F	1735	N11	E30		1-	2	1655	1.40	1.50		
MC MATH	23	1728	1745	N18	E95	5993	1-	1	1732	.20	.20		
MC MATH	23	1806	1815	N10	E40	7003	1-	1	1810	.30	.40		
MC MATH	23	1933	1940	N10	E25	7003	1-	2	1934	.20	.20		
SAC PEAK	23	1954	2004	N11	E31		1-	1		.14	.14	15	

CONFIRMED - STANDARD - BOLD DATA

SOLAR FLARES

OCTOBER 1963

OBSERVATORY	DATE	OBSERVED UNIVERSAL TIME		LOCATION		DURATION — MINUTES	IM- POR- TANCE	OBS COND.	TIME — UT	MEASUREMENTS		MAX WIDTH H _s	MAX. INT. °	PROVISIONAL IONOSPHERIC EFFECT
		START	END	APPROX. LAT	APPROX. MER DIST.					MEAS AREA Sq. Deg.	CORR AREA Sq. Deg.			
SAC PEAK	23 OCT 1963	2004 F	2011	S12 W27			1-	1		.29	.29		16	
SAC PEAK	23	2320	2323 D	N12 E38			1-	1		.43	.45		17	
	23	2335	2400	PATROL										
	24	0000	0005	NO FLARE										
MANILA	24	0020	0640	NO FLARE										
HTE-PROVEN	24	0448 E	0501 D	PATROL		13 D	1	2	0449	2.50	2.70			
HTE-PROVEN	24	0728	0744	N10 E35	7003		1-		0730	.80	.80			
	24	1025	1235	N12 E24			1-		1154	.60	.60			
OTTAWA	24	1410	1421	N10 E19			1-		1417	.82	.82			
HTE-PROVEN	24	1413	1419	N11 E14			1-		1418	.40	.50			
	24	1413	1419	N12 E15			1-		1440	1.63	1.67			
OTTAWA	24	1436	1443	N13 E28			1-	3	1442	1.30	1.50			
HTE-PROVEN	24	1439	1442	N12 E26		80 D	1-		1604	2.50	2.80			
HTE-PROVEN	24	1455	1615 D	N12 E25	7003		1-	1	1540	1.50	1.70			
MCMAH	24	1500 F	1615 D	N12 E25	7003									
	25	0045	0620	NO FLARE										
	25	0625	0635	PATROL										
	25	0625	0635	NO FLARE										
	25	0640	0700	NO FLARE										
WENDEL	25	0705	0715	NO FLARE										
ONDRÉJOV	25	0720 E	0726 D	N09 E05			1-	3	0735			1.80		
WENDEL	25	0727 E	0758 D	S09 W50		23 D	1-							
	25	0737 E	0800 D	S10 W48	7008									
	25	1225	1235	NO FLARE										
	25	1255	1325	NO FLARE										
ONDRÉJOV	25	1326 F	1424	N13 E14	7003	58 D	1+	1	1356	.35	.35	1.60	17	
SAC PEAK	25	1438	1448	N10 E05			1-	2						
WENDEL	25	1443 F	1450 D	S09 W52			1-							
WENDEL	25	1519 E	1534 D	S09 W53			1-		1947	.80	1.40			
MCMAH	25	1940	1955	N25 W70	7002		1-	2	1950	.30	.30		10	
LOCKHEED	25	1945	2000	S10 W55			1-		2229	2.00	2.00	30	30	
	25	2005	2020	NO FLARE						1.11	1.09	18	18	
LOCKHEED	25	2218 E	2324	N12 E09	7003	66 D	1-	2						
SAC PEAK	25	2256 E	2315 U	N11 E12			1-	2						
	26	0040	0710	NO FLARE										
MANILA	26	0105	0112	PATROL			1-	2	0107	.35	.35			
WENDEL	26	0748 E	0800 D	N11 E06			1-							
CAPRI-S	26	0807	0825	S10 W64			1-	3	0811	1.20	1.20			
WENDEL	26	0810	0828 D	N12 E09		18 D	1-							
WENDEL	26	0814 E	0826 D	N11 E07	7003		1-							
WENDEL	26	0911 E	0926 D	S10 W65			1-							
WENDEL	26	1046	1152	N11 W01			1-							
WENDEL	26	1050	1230	N10 W03	7003	66	2							
CAPRI-S	26	1125	1233	N10 E00	7003	100	2+	2	1144	7.00	7.00	292	292	
CAPRI-S	26	1240	1310	S10 W67	7008	8	1	2	1215	.40	1.10			
	26	1345 E	1351	NO FLARE										
OTTAWA	26	1346	1400 D	PATROL			1-	2	1347	1.23	1.23			
MCMAH	26	1455	1507	N11 E03	7003		1-	2	1353	.20	.20			
SAC PEAK	26	1457	1506	N08 W09			1-	3	1458	.35	.35			
MCMAH	26	1507	1645	N08 W08	7003	98	1-	2	1458	.40	.40			
MCMAH	26	1507	1645	N11 W05	7003		1	2	1535	2.50	2.50			

SOLAR FLARES

OCTOBER 1963

OBSERVATORY	DATE	OBSERVED TIME		LOCATION		DURA- TION — MINUTES	IM- POR- TANCE	OBS COND.	MEASUREMENTS			PROVISIONAL IONOSPHERIC EFFECT	
		START	END	APPROX LAT.	MER DIST				TIME — UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.		MAX. WIDTH H _o
— SAC PEAK — OTTAWA — CAPRI-S — LOCKHEED — MCMATH — MCMATH SAC PEAK LOCKHEED SAC PEAK	26 1513	1600	1523	N12 W06	7003	47	1	3	3.73	3.51		18	G-SWF
	26 1515 E	1612	1527	N11 W04	7003	57	1	2	1527	4.67			
	26 1543 E	1555 D		N10 W02	7003	12	1+	1	1548	5.00			
	26 1836	1910 D	1847	N11 W07	7003	34	1	2	1847	5.00		20	
	26 1837	1900 D	1843	N11 W08	7003	23	2+	2	1920	6.50			
	26 1900	2014 D	1920	N11 W08	7003	74	2	3		9.49		20	
	26 1838	2030	1938	N12 W17	7003	112	2	3	9.69	9.49		20	
	26 2043 E	2043	2013	N12 W08	7003	39	2	1	2013	7.00		20	
	26 2247	2311	2248	N13 W09			1-	3	.56	.52		17	
	26 2355	2400	NO FLARE	PATROL									
— SAC PEAK — MANILA MANILA MANILA MANILA MANILA MANILA WENDEL SAC PEAK SAC PEAK SAC PEAK	27 0000 F	0015 D	0003	N12 W09	7003	76	1-	1		1.04	1.20	19	S-SWF
	27 0001 E	0027	0004	N11 W05	7003		1-	2	0004	2.10	2.10		
	27 0015	0710	NO ELARE	PATROL									
	27 0051	0105	0055	N12 W06			1-	2	0055	.50	.50		
	27 0108	0112	0109	N12 W06			1-	2	0109	.20	.20		
	27 0153	0206	0155	N12 W06			1-	2	0155	.60	.60		
	27 0216	0258	0225	N12 W06			1-	2	0225	.60	.60		
	27 0353 E	0416 D	0408	N12 W09			1-	1	0408	1.00	1.00		
	27 1030	1055	NO FLARE	PATROL									
	27 1305	1325	NO ELARE	PATROL									
MANILA SAC PEAK SAC PEAK SAC PEAK MANILA WENDEL SAC PEAK WENDEL MCMATH	27 1354	1430		N11 W11	7003	26	1	3		3.00		15	
	27 1825	1836	1827	N10 W25			1-	3		.70	.70	16	
	27 2138	2145	2139	N09 W18			1-	3		.14	.14	15	
	27 2259	2312	2304	N12 W22			1-	3		.47	.47		
	27 2355	2400	NO FLARE	PATROL									
	28 0015	0700	NO FLARE	PATROL			3	2	0215	13.00	13.00		
	28 0158 E	0335	0158	N12 W20	7003	97	1-	2					
	28 0942 E	0954 D		N12 W30			1-	3					
	28 0946 E	0951 D		S20 W53			1-	3				1.10	
	28 1221 E	1227		N12 W29			1-	3	1222			1.30	
— ONDREJOV — ONDREJOV HTE-PROVEN WENDEL MCMATH	28 1233	1249		N12 W29			1-	3	1237	1.00	1.20		
	28 1328 F	1330		N11 W28			1-	1					
	28 1337 E	1349 D	1633	N12 W31	7003	1633	1-	1	1633	.20	.20		
	28 1630	1640		N14 W31									
	28 1815	1820	NO FLARE	PATROL									
	28 2005	2120	NO ELARE	PATROL									
	28 2125	2300	NO FLARE	PATROL									
	28 2325	2400	NO FLARE	PATROL									
	29 0010	0700	NO FLARE	PATROL									
	29 0724 E	0933 D		N01 E19	7913	129	1	2	0756	5.00	5.00	135	
— HTE-PROVEN — SALT SJOBADN SALT SJOBADN ONDREJOV WENDEL HTE-PROVEN ONDREJOV OTTAWA	29 0727 E	0951 D		N01 E14			1-	2		1.50	1.60		
	29 0845 F	0930 D		N00 E18			1-	2		1.00	1.10		
	29 0855 F	0917 D		S10 W61			1-	2		.50	1.10		
	29 0946 F	1000 D		S10 W64	7010	14	1	2	0948		3.00	1.40	
	29 1152 F	1208 D		S10 W65	7010	16	1	3	1156	.60		1.80	
	29 1155	1207		S10 W66			1-	1	1349				
	29 1340 F	1403		S10 W67			1-	1					
	29 1653	1700	1657	N09 W54			1-	1	1657	.76	1.01		

COMPARISON - STANDARDS - BOULDER

SOLAR FLARES

OCTOBER 1963

OBSERVATORY	DATE	OBSERVED UNIVERSAL TIME		LOCATION		DURATION — MINUTES	IM. POR- TANCE	OBS. COND.	MEASUREMENTS			PROVISIONAL IONOSPHERIC EFFECT
		START	END	APPROX. LAT.	APPROX. MER DIST.				TIME — UT	MEAS. AREA Sq. Deg	CORR. AREA Sq. Deg	
MCMATH MCMATH SAC PEAK MANILA	29 OCT 1963	1725 F	1735 D	N00 E16	7013	1-	1-	1	1728	.20	.20	
	29	1853	1859	N11 W55	7003	1-	1-	1	1855	.20	.40	
	29	2312	2330	N00 E10		1-	1-	2		1.18	1.16	18
	29	2320 F	2331	N04 E09		1-	1-	2	2323	1.00	1.00	
MANILA MANILA ONDREJOV LOCKHEED	30	0045	0645	PATROL								
	30	0048 E	0055	N01 E08		1-	1-	1	0051	.25	.25	
	30	0228	0235	N06 W01		1-	1-	2	0231	.67	.67	
	30	0952	1002	S08 E34		1-	1-	3	0954			
LOCKHEED	30	2015	2027	N08 E25		1-	1-	2	2019	.40	.40	10
	31	0015	0635	PATROL								
	31	0900	0910	PATROL								
	31	0925	0930	PATROL								
CAPRI F CAPRI S CRIMEE HERSTHONCEU	31	1100	1110	PATROL								
	31	1210	1220	PATROL								
	31	1615	1625	PATROL								
	31	1630	1840	PATROL								
HTE-PROVEN HAUTE-PROVENCE	31	2345	2400	PATROL								
	31	2345	2400	PATROL								
	31	2345	2400	PATROL								
	31	2345	2400	PATROL								

COMMERCE - STANBOLIS - BOULDER

ATHENS	ATHENS, GREECE	HONOLULU	HAWAII, USA	NERA	NEDERHORST den BERGH,
BAKOU	PIRCULI, USSR	IKOMASAN	KYOTO, JAPAN		NETHERLANDS
CAPETOWN	ROYAL OBSERVATORY, CAPE OF GOOD HOPE	KIEV KO	KIEV GAO, USSR	NIZMIR	KRASNAVYA PAKURA, USSR
CAPRI F	CAPRI, ITALY (GERMAN)	KIEV KY	KIEV UNIVERSITY, USSR	SAC PEAK	SACRAMENTO PEAK, N.MEX., USA
CAPRI S	CAPRI, ITALY (SWEDISH)	LOCKHEED	LOS ANGELES, CALIF., USA	SALTSJOBADEN	STOCKHOLM, SWEDEN
CRIMEE	SIMEIZ, USSR	MCMATH	MCMATH-HULBERT	SCHAUTINS	SCHAUTINSLAND, GFR
HERSTHONCEU	ROYAL GREENWICH OBSERVATORY, HERSTHONCEUX, ENGLAND	MOSCOU	PONTIAC, MICH., USA	TASHKENT	TASHKENT, USSR
HTE-PROVEN	HAUTE-PROVENCE	NEW SCHAUTIN FREIBURG, GFR	MOSCOM-GAISH, USSR	WENDEL	WENDELSTEIN, GFR

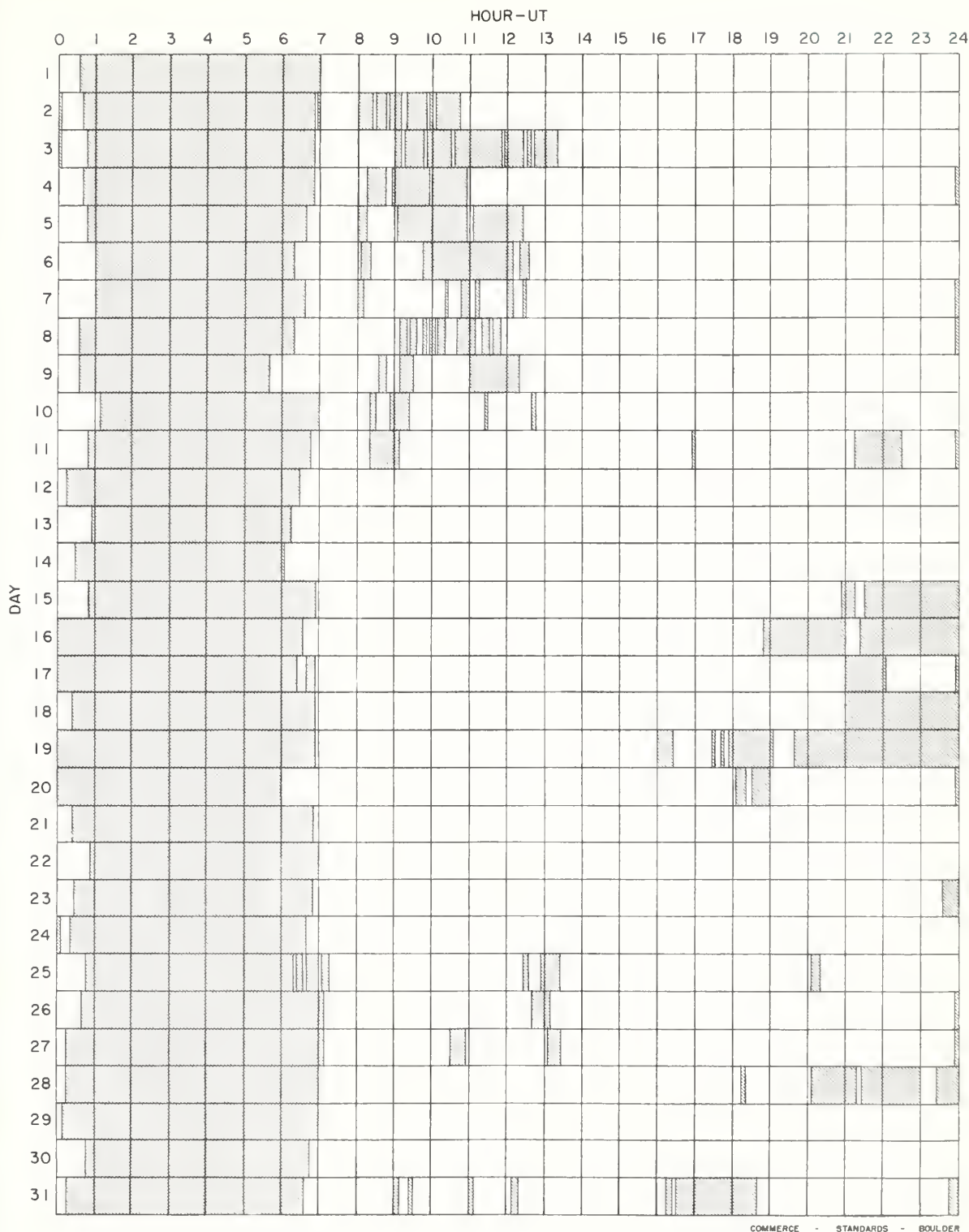
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SEE DESCRIPTIVE TEXT PUBLISHED NOVEMBER 1961 FOR DEFINITION OF CORRECTED AREA VALUES LISTED FOR CLIMAX, HAWAII, LOCKHEED AND SACRAMENTO PEAK.

E = LESS THAN D = GREATER THAN U = APPROXIMATE □ = NOT REPORTED.

INTERVALS OF NO FLARE PATROL OBSERVATIONS OCTOBER 1963

IIIj



Observatories Included:

Bucharest	Haute-Provence	Istanbul	McMath-Hulbert	Ottawa
Capri-S (Swedish)	Herstmonceux	Lockheed	Ondrejov	Sacramento Peak

SOLAR FLARES

JULY 1963

OBSERVATORY	DATE	OBSERVED UNIVERSAL TIME		LOCATION			DURA- TION — MINUTES	IM- POR- TANCE	OBS. COND.	MEASUREMENTS				PROVISIONAL IONOSPHERIC EFFECT		
		START	END	APPROX. LAT	MER DIST	MATH PLAGE REGION				TIME — U T	MEAS AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Ha		MAX INT. %	
UCCLE CLIMAX	01 JULY 1963															
	01	0200	0335	NO FLARE	PATROL											
	01	0345	0400	NO FLARE	PATROL											
	01	0530	0545	NO FLARE	PATROL											
	02	0220	0245	NO FLARE	PATROL											
	02	0255	0335	NO FLARE	PATROL											
	02	0345	0400	NO FLARE	PATROL											
	02	0510	0520	NO FLARE	PATROL											
	02	0545	0600	NO FLARE	PATROL											
	02	1521 E	1536	1531	N11 W56			1-	3	1531	.70	1.10				
	02	2124	2129 D		N09 W58			1-		2127						
	03	0220	0300	NO FLARE	PATROL											
	03	0726	0737	0729	N10 W68			1-	3	0729	.80	2.00				
	03	1431	1501 D	1433	N10 W72			1-	3		.30	.70				
CAPETOWN NEW SCHAUN UCCLE	04	0225	0255	NO FLARE	PATROL											
	04	0730	0750		N11 W77	6854	20	1	2	0736	1.00	4.90			S-SWF	
	04	0734	0754	0736	N08 W86	6854	20	1	3	0737	1.00	2.00				
	04	0734	0754	0737	N08 W79	6854	20	1+	3	0735			4.10			
	04	0735	0740		N10 W77	6854	5	1	3	0740			3.10			
	04	0739 E	0750		N11 W85	6854	11 D	1+	3	1242						
	04	1240	1250		N11 W88	6854	10	1+	3	1245	.90					
	04	1240	1300		N11 W80	6854	20	1	2	1246	2.06					
	04	1240	1303	1245	N08 W88	6854	23	1	1	1245						
	04	1246 E	1300	1246	N10 W90	6854	14 D	1+	3	1246	1.50	5.89				
	04	1300 E	1305 D		N09 W83	6854	5 D	1	3	1300						
	05	0200	0300	NO FLARE	PATROL											
	05	1003	1033	1008	N08 E50			1-	3							
	UCCLE	06	0215	0300	NO FLARE	PATROL										
07		0200	0300	NO FLARE	PATROL											
07		1835	1850	NO FLARE	PATROL											
09		0205	0300	NO FLARE	PATROL											
10		0200	0210	NO FLARE	PATROL											
10		0225	0250	NO FLARE	PATROL											
11		0200	0205	NO FLARE	PATROL											
11		0215	0235	NO FLARE	PATROL											
12		0205	0230	NO FLARE	PATROL											
12		2325	2400	NO FLARE	PATROL											
13		0230	0300	NO FLARE	PATROL											
14		0220	0225	NO FLARE	PATROL											

SOLAR FLARES

JULY 1963

OBSERVATORY	DATE	OBSERVED UNIVERSAL TIME		LOCATION			DURA- TION — MINUTES	IM. POR- TANCE	OBS. COND.	TIME		MEASUREMENTS		PROVISIONAL IONOSPHERIC EFFECT
		START	END	APPROX. LAT.	MER. DIST.	MATH- PLACE REGION				— U T	— Hq	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	
ONDRE JOV CLIMAX	JULY 1963													
	15	0205	0315	PATROL										
	16	0200	0300	PATROL										
	17	0200	0300	PATROL										
	18	0240	0300	PATROL										
	19	0205	0235	PATROL										
	20	0210	0235	PATROL										
	21	0205	0225	PATROL										
	22	0200	0300	PATROL										
	23	0205	0245	PATROL										
NEW SCHAUM	24	0205	0300	PATROL										
	24	0840	0844 D	N15 W58		6887	4 D	1-	3					
	24	2301	2312	N16 W02				1-				•40	•40	
	25	0045	0050	PATROL										
	25	0125	0130	PATROL										
	25	0140	0220	PATROL										
	25	0230	0235	PATROL										
	26	0155	0300	PATROL										
	26	2315	2325	PATROL										
	27	0150	0220	PATROL										
CRIMEE UCCLE UCCLE UCCLE CLIMAX CLIMAX	28	0215	0230	PATROL										
	28	0250	0255	PATROL										
	28	1755 E	1847	N13 E85		6008	52 D	1+	2				3.70	
	29	0150	0215	PATROL										
	29	0250	0300	PATROL										
	29	0715	0717 D	N09 E79				1-	1	0717		•90		
	29	0845	0902	N13 E79				1-	4					
	29	1027	1050	N09 E79				1-	3					
	29	1106	1123	N09 E79				1-	3					
	29	1957 E	2001 D	N14 W21				1-		2000		•40	•40	
ONDRE JOV CLIMAX CLIMAX	29	2141 E	2153 D	N13 W21				1-		2142		•70	•70	
	30	0225	0300	PATROL										
	30	0530 E	0536	N12 W25		6005	6 D	1	3	0531				
	30	0756	0812	N13 W28				1-	1	0804		•90		
	30	0800 E	0814	N13 W27		6905	14 D	1		0757		1.24		
	30	0802 E	0814	N13 W26		6005	12 D	1	2	0802		2.00		
	30	0805 F	0827	N13 W27		6905	22 D	1	3	0806		3.00	3.45	
														56

SOLAR FLARES

JULY 1963

OBSERVATORY	DATE JULY 1963	OBSERVED UNIVERSAL TIME		LOCATION		DURA- TION — MINUTES	IM- POR- TANCE	OBS. COND.	TIME — UT	MEASUREMENTS			PROVISIONAL IONOSPHERIC EFFECT
		START	END	APPROX. LAT.	MER DIST.					MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Re	
[NEW SCHAUN	30	0823 E	0828	N12 W25			1-	2			.20		
[UCCLE	30	0824 E	0927	N12 E87			1-	3			.30		
NEW SCHAUN	30	1052	1109	N11 W28			1-	2			.38		
[KIEV KO	30	1246 E	1250 D	N13 W30	6905	10 D	1-	3	1244	3.61			60
[CAPPI-F	30	1455 F	1505	N13 W29	6905	10 D	1-	3	1246	.33			
ZURICH	30	1520 E	1535 D	N13 E58			1-	2	1455	2.00		2.10	
[ONDREJOV	30	1531	1543	N12 E62			1-	3	1520		.50		
[UCCLE	30	1732 E	1737 D	N11 W32			1-	2			.30		
NEW SCHAUN	30	1750 E	1803	N11 E59			1-	2			1.00		
NEW SCHAUN	30	1759 F	1810	N12 E75			1-	2					
ONDREJOV	31	0505 E	0511	N13 E67			1-	3	0507	1.80	5.35	2.10	88
[ARASTUMANI	31	0618	0626	N10 E72	6909	8	1+	3	0622	1.44		2.40	65
[ONDREJOV	31	0620 E	0629	N13 E66	6909	9 D	1+	3		1.34		2.60	76
[NIZMIR	31	0747	0814	N19 W40	6905	23 D	1-	3	0754	2.43			
[CRIMEE	31	0748	0806	N13 W39	6905	26	1+	3	0750		.60		
[ONDREJOV	31	0748 E	0811	N13 W38	6905	8 D	1-	3			3.00		
[ARASTUMANI	31	0752 E	0800 D	N15 W39	6905	13 D	1-	3			.50		
[NERA	31	0758 E	0815	N12 W37	6905	6 D	1-	3			1.10		60
[ZURICH	31	0800 E	0813	N12 W39	6905	1032	1-	3		.72			55
[UCCLE	31	0914	0939	N13 E48			1-	3		1.34			
NEW SCHAUN	31	0921 E	0936	N11 E51			1-	3			1.00		
NEW SCHAUN	31	0933 E	0938	N12 W40			1-	3					
NIZMIR	31	1004	1022	N19 W42	6905		1-	3					
NIZMIR	31	1028	1034 D	N19 W42	6905		1-	3					
NEW SCHAUN	31	1044 E	1056 D	N12 W39			1-	3					
NEW SCHAUN	31	1113 F	1124	N12 W40			1-	3					

COMMERCE - STANDARD - BOULDER

These flare reports are addenda to the July 1963 flares published in CRPL-F 228 B for August 1963.

ATHENS	ATHENS, GREECE	HONOLULU	HAWAII, USA	NERA	NEDERHORST den BERCH,
BAKOU	PIRCULI, USSR	IKOMASAN	KYOTO, JAPAN		NETHERLANDS
CAPETOWN	ROYAL OBSERVATORY,	KIEV KO	KIEV GAO, USSR		KRASNOYA PAKHRA, USSR
	CAPE OF GOOD HOPE	KIEV KY	KIEV UNIVERSITY, USSR		SACRAMENTO PEAK, N.MEX. USA
CAPRI F	CAPRI, ITALY (GERMAN)	LOCKHEED	LOS ANGELES, CALIF., USA		STOCKHOLM, SWEDEN
CAPRI S	CAPRI, ITALY (SWEDISH)	MCNATH	MCNATH-HULBERT		SCHAUTINSLAND, GFR
CRIMEE	SIMEIZ, USSR	MOSCOW	PONTIAC, MICH., USA		TASHKENT, USSR
HERSTHONCEU	ROYAL GREENWICH OBSERVATORY,		MOSCOW-GAISH, USSR		WENDELSTEIN, GFR
	HERSTHONCEUX, ENGLAND				
HTE-PROVEN	HAUTE-PROVENCE		NEW SCHAUN FREIBURG, GFR		

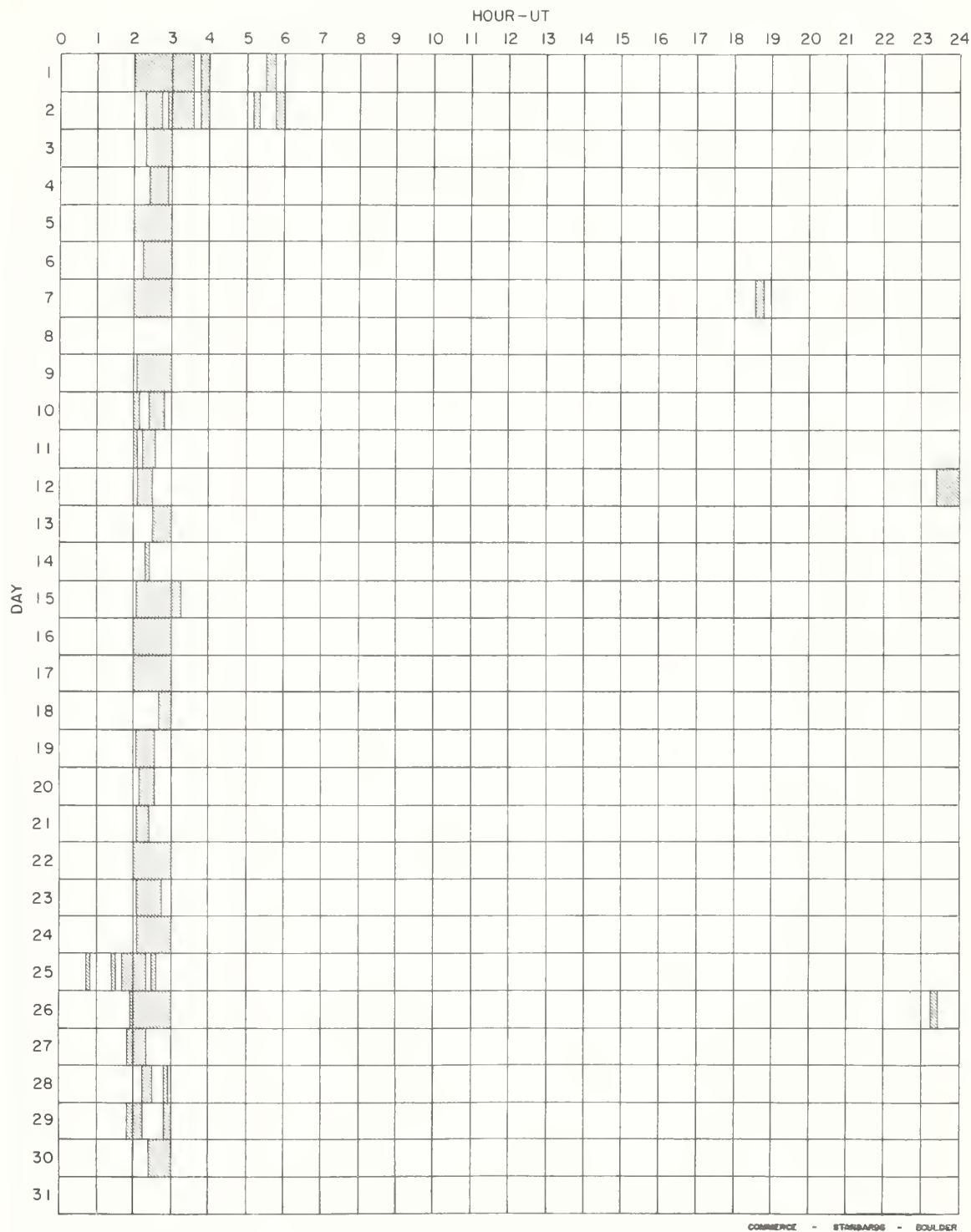
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E = LESS THAN D = GREATER THAN U = APPROXIMATE □ = NOT REPORTED.

INTERVALS OF NO FLARE PATROL OBSERVATIONS JULY 1963

IIIa



Observatories Include:

Abastumani	Capetown	Haute-Provence	Istanbul	McMath-Hulbert	Sacramento Peak
Arcetri	Capri-F (Germany)	Herstmonceux	Kharkov	Mitaka	Tachkent
Athens	Capri-S (Swedish)	Honolulu	Kiev KO	Nizmir	Voroshilov
Bakou	Climax	Huancayo	Kodaikanal	Ondrejov	
Bucharest	Crimee	Ikomasan	Lockheed	Ottawa	

IONOSPHERIC EFFECTS OF SOLAR FLARES

JANUARY — MAY, 1963

IONOSPHERIC EFFECTS OF SOLAR FLARES	UNIVERSAL TIME			TYPE of IMP	FADING RATES								WJ04 DOTS INDEX	STATION	KNOWN FLARE
	START	END	MAX		IMP	SPR	PRF	PRF	PRF	PRF	PRF	PRF			
JAN 1963															
11	1356	1400	1407										1	BO (WWV10)	1356
15	1619	1624	1630										1	BO (WWV10-0.7, WWV15-0.2) FKE4-0.2 FKE5-0.1	1617
15	1740	1745	1743										1	BO (WWV10-1.0, WWV15-0.5) FKE4-0.3 FKE5-0.2	1739
31	1903	1904	1904										1	BO (WWV10)	
FEB 06	1938	1945	1946										1	BO (WWV10-0.7, WWV15-0.2) FKE4-0.2 FKE5-0.1	1925
5	2219	2228	2230										1	BO (WWV10-0.7, WWV15-0.3) FKE4-0.3 FKE5-0.2	2219
18	1557	1601	1559										1	BO (WWV10-1.0, WWV15-0.9) FKE4-0.5 FKE5-0.2	1557
MAR 04	2103	2106	2104										1	BO (WWV10-1.4, WWV15-0.9) FKE4-0.8 FKE5-0.7	2103
07	1928	1930	1929										1	BO (WWV10-0.7, WWV15-0.5) FKE4-0.3 FKE5-0.2	1928
07	2200	2210	2201										1	BO (WWV10-0.7, WWV15-0.3) FKE4-0.4 FKE5-0.2	2159
APR 11	2008	2012	2009										1	BO (WWV10-0.4, WWV15-0.3) FKE4-0.2 FKE5-0.1	
15	1123	1130	1124										1	BO (WWV5)	1118E
15	1614	1633	1616										1	BO (WWV10-7.0, WWV15-5.6) FKE4-5.2	1613
15	1726	1729	1727										1	BO (WWV10-0.3, WWV15-0.2) FKE4-0.2	1718
15	1737	1744	1739										1	BO (WWV10-1.3, WWV15-0.6) FKE4-0.5	1738
15	1923	1925	1924										1	BO (WWV10-0.4, WWV15-0.2)	
16	1642	1646	1643										1	BO (WWV10-0.7, WWV15-0.3) FKE4-0.3 FKE5-0.2	1640
16	1648	1652	1645										1	BO (WWV10-1.0, WWV15-1.0) FKE4-0.7 FKE5-0.6	1640
17	1518	1522	1520										1	BO (WWV10-0.7, WWV15-0.4) FKE4-0.4 FKE5-0.2	1520
17	1818	1825	1819										1	BO (WWV10-0.4, WWV15-0.2)	1820
17	1901	1907	1903										1	BO (WWV10-2.1, WWV15-1.2) FKE4-0.6 FKE5-0.7	1900
17	2210	2213	2211										1	BO (WWV10-0.3, WWV15-0.2)	
19	1754	1803	1758										5	BO (WWV10-4.8, WWV15-3.0) FKE4-1.4 FKE5-1.8) HA (WWVH5-1.3)	1756
MAY 07	1744	1759	1747										1	BO (WWV10-1.1, WWV15-0.7) FKE4-0.1	1746
13	1800	1804	1801										1	BO (WWV10-0.6, WWV15-0.2) FKE4-0.2 FKE5-0.1	1800
15	1710	1715	1712										1	BO (WWV10-0.5, WWV15-0.7) FKE4-0.1 FKE5-0.1	1711

CONTINUED - STANDARD - ROLLEP

IONOSPHERIC EFFECTS OF SOLAR FLARES

MAY—AUGUST, 1963

IIIp

IONOSPHERIC EFFECTS OF FLARE LIST	TIME			F2 LAYER							CITY OBSERV STATION	STATE	KNOWN FLARE
	UT	LT	MLT	f _o F ₂	h'F ₂	h'F ₂ min	h'F ₂ max	h'F ₂ min	h'F ₂ max	h'F ₂ min			
MAY (CONT.)													
33	1728	1706	1706								1	RO (WWW10-0.6) WWW15-0.6 KKE4-0.1 KKE5-0.11	1229
34	1736	1714	1717								1	RO (WWW10-0.6) WWW15-0.6 KKE4-0.1 KKE5-0.11	1229
35	1854	1830	1830								1	RO (WWW10-0.6) WWW15-0.6 KKE4-0.4 KKE5-0.7	1454
36	1817	1754	1811								1	RO (WWW10-1.4) WWW15-0.6 KKE4-0.5 KKE5-0.7	1510
37	1814	1818	1818								1	RO (WWW10-1.4) WWW15-1.6 KKE4-1.2 KKE5-0.6	1459
38	1820	1821	1821								1	RO (WWW10-1.4) WWW15-1.6 KKE4-0.3 KKE5-0.7	1623
39	1706	1700	1707								1	RO (WWW10-0.3) WWW15-0.1	1706
40	1815	1819	1816								1	RO (WWW10-1.4) WWW15-2.0 KKE5-1.2	1817
JUNE													
41	1128	1113	1113								1	RO (WWW10-0.3)	1121
42	2047	2051	2048								1	(WWW10-2.3) KKE4-0.5 KKE5-0.4	2046
43	2202	2208	2203								1	RO (WWW10-0.4)	2203
44	1711	1714	1710								1	RO (WWW10-1.2) WWW15-0.6	1700
45	1812	1816	1814								1	RO (WWW10-0.7) WWW15-0.4	1814
46	1518	1511	1511								1	RO (WWW10-0.4) WWW15-0.3	1526
47	1808	1815	1810								1	RO (WWW10-2.1) WWW15-1.0	2032E
48	2028	2021	2020								1	RO (WWW10-0.6) WWW15-0.3 KKE5-0.1	2032E
49	2121	2127	2122								1	RO (WWW10-0.6) WWW15-0.4	
50	1858	1831	1850								1	RO (WWW15-0.6) KKE5-0.4	
51	1936	1940	1937								1	RO (WWW10-0.6) WWW15-0.1	*
52	2052	2100	2058								1	RO (WWW10-2.0) WWW15-0.6 KKE4-0.1	
AUG													
53	1736	1738									5	RO MC	
54	1629	1631									5	RO MC	
55	1945	1950	1946								1	RO (WWW10-2.0) WWW15-1.1	1935
56	1958	2005									5	HA RO MC	
57	1604	1733	1615				2+				5	LO RO MC RO A1 A2 A15 A16	
58	1610	1613									4	RO MC	
59	1611	1631	1614								4	RO 3D MC	
60	1752	1759	1753								1	RO (WWW10-10.0) WWW15-5.6 KKE4-4.0 KKE5-7.1	1752
61	1759	1832	1801								4	RO MC	
62	1800	1845									4	RO MC	
63	2135	2139	2136								1	RO (WWW10-1.4) WWW15-0.6 KKE4-0.6 KKE5-1.6	2134
64	2155	2113	2134								5	RO (WWW10-0.6) WWW15-0.6 KKE4-0.3 KKE5-1.1	2104
65	2034	2037	2034								5	RO HA MC	
66	2035	2040	2034								1	RO (WWW10-1.4) WWW15-1.2 KKE4-1.0 KKE5-1.4	2035
67	2037	2040									2	RO HA MC	

IONOSPHERIC EFFECTS OF SOLAR FLARES

SEPTEMBER 1963

IONOSPHERIC EFFECTS OF SOLAR FLARE	UNIVERSAL TIME			TYPE OF FLARE	IMPORTANCE								WIDE SPREAD INDEX	STATIONS	KNOWN FLARE			
	START	END	MAX		APC	SCA	DEL	SEC	DEL	SEC								
1963 4	2139	2141										1	5	HA BO MC	*			
E	1965	2140	1930H	G 1+										4	MC AD WS			
	191	214	193											5	MAINPA301, BO(NBA18), TU(NBA12)			
	1930	1934											1+	5	BO HA MC			
1	1941	1946	194									26	1	RO (WWW10-2.6 WWW15-1.6 KKE4-0.8)	1941E			
12	2121	2122	2030									11	1	BO (WWW10-1.1 WWW15-0.4 KKE4-0.3)	2016			
E	2459	2627	2410	SL 3										5	OK AD CA TO CW+	*		
	2418	2436	2424											1	TY	*		
	1540	1544	1542										02	1	BO (WWW10-0.2 WWW15-0.1 KKE4-0.1)	1532		
1	1544	1548	154									04	1	BO (WWW10-0.4 WWW15-0.1 KKE4-0.1)	1652			
E	1758	1759	1730											5	BOINBA501, TUINBA45)			
	1758	1759	1730											5	RE BO FM HU MC WS	1705		
	1716	1833	1728											5	A5 A1 A14			
E	1716	18	1734											5	BO HA MC			
	1716	161												5	BO MC A5 A9 A16			
	1716	1733	1745											5	BOINBA10) TUINBA10)			
E	115	216												5	HA CA NZ OK TO CW+ CW++	0015		
	117	214	214											5	TY HA MA			
	116	1131	217											1	A3			
E	1133	114	211											5	BO HA MA			
	1130	113	1836											1	A16	1304		
	114	113	111											1	A5			
E	1158	1156	1118	SL 1										5	HU MC NE			
	114	147												1	KU			
	1431	1454	1443											5	A1 A5	1442		
E	1431	1513	1430											1	A1			
	1743	1847	1750											5	TUINBA13) BOINBA10)			
	1745	1747	1746										10	1	BO (WWW10-1.0 WWW15-0.4 KKE4-0.3)	1745		
E	215	211	2031											5	A14 A1 A3 A5	2008		
	2015	2100	2031											5	BO HA MC			
	215	215												5	BO HA A1 A3 A9 A15 A16			
E	215	211	2041											5	MC AD BE BO FM HU NZ WS CW+			
	2117	2117	2118										68	1	BO (WWW10-6.8 WWW15-4.0 KKE4-2.8 KKE5-3.2)			
	E	2138	2143	211	SL 1-										5	A1 A3 A5	2108	
2139		2138	2113											5	MC AD BE BO HU			
2135		2138	2117											5	BO HA MC			
E	2135	2138												5	BO HA MC A15 A3			
	2111	2111	21110											1	BO (WWW10-2.6 WWW15-1.4 KKE4-1.0)			
	E	2148	214	2151											5	HA BO		
2148		2105H	2152											5	A5 A3 A14			
2148		215												5	BO HA A3 A15			
E	242	214	2048											1	A3	0041		
	2042	2116	2044											1	HA			
	2042	214												1	HA			
E	2420	2433	2424											1	TY	0420E		
	114	1110	1124											3	BO PU	0938		
	1015	1107	1047											1	A3			
E	1015	1107												5	NE PU SW CW+ CW++			
	1115	1110												1	PU			
	1016	1104												1	PU			
E	1112	1139	1112											3	A5 A3	1300E		
	1113	1111	1134											1	BO (WWW10-6.8 WWW15-12.0 KKE4-6.0)			
	E	1103	1114	1105											5	BO MC PU		
1103		1135	1107											5	RE FM HU MC NE PU SW CW+ CW++			
1104		113	1105											5	LO PU A1 A3 A15			
E	1104	1144												1	PU			
	1467	1465	1417											4	HU MC PU	1430		
	1431	1414												5	MC RO RO			
E	1415	143	1413											1	BO (WWW10-0.8 WWW15-0.6 KKE4-0.3)	1605		
	E	1426	144	143											1	BO (WWW10-2.6 WWW15-1.8 KKE4-0.6)	1605	
		E	1811	1814	1812											06	1	BO (WWW10-0.6 WWW15-0.3 KKE4-0.2)
E			115	211	2115											5	TUINBA18) ROINBA15)	
	2122		2124	2123											08	1	RO (WWW10-0.8 WWW15-0.4 KKE4-0.5)	2222
	E	245	214	2441											1	TY	*	
240		2138	2449											1	TY	0629		
242		2144												1	20	0823		
E	247	2148												1	DA			
	22	2143	2148											1	RO			
	247	2135	2145											1	TY			
E	1814	182												5	MC RO	1820		
	1818	1805	1816											1	ROINBA18)			
	182	1803	1806											5	RE RO FM HU MC	1910		
E	1826	1811	1817											1	BO (WWW10-1.1 WWW15-0.6 KKE4-1.0)			
	E	227	211	2137											4	A5 A3		
		1127	211	1131											5	MAINPA35) ROINPA33)		
1130		1144	1134											5	BO HA MC			
E	1134	211	2138											5	HA A3 A5 A9 A15 A16			
	113	211	2138											06	1	BO (WWW10-0.5 WWW15-0.6 KKE4-0.6)	2133	
	E	221	243	240	SL 2										5	OK CA TO	0352	
244		2416	2432											1	TY			
145		114	1407	SL 1+										5	MC RE DA FM HU WS	1358		
E	1413	114	1416											1	BO (WWW15-0.8)			

IONOSPHERIC EFFECTS OF SOLAR FLARES

SEPTEMBER 1963

IIIc

IONOSPHERIC EFFECTS OF SOLAR FLARES	UNIVERSAL TIME			TYPE SWF IMP	IMPORTANCE					VDP F0F2 F107 INDEX	STATION	KNOWN FLARE
	START	END	MAX		AR	SR	SP	FA	FE			
SEPT (CONT.) 1963												
18	1529	1533	1530						03	1	RO (WWV10-0.3 WWV15-0.2 FFE4-0.3)	1530
18	1614	1618	1615						03	1	RO (WWV10-0.3 WWV15-0.2)	1605
18	1640	1644	1642						04	1	RO (WWV10-0.4 WWV15-0.3)	
18	1659	1702	1700						10	1	BO (WWV10-1.0 WWV15-0.5 KKE4-0.5)	1702
18	1703	1705	1704						10	1	BO (WWV10-1.0 WWV15-0.8 FFE4-0.8)	1702
18	2130	2133	2130						04	1	RO (WWV10-0.4 WWV15-0.2 FFE4-0.2)	2045
18	2131	2400							1	1	HA	
18	2231	2234	2232						03	1	RO (WWV10-0.3 WWV15-0.2 FFE4-0.3)	*
19	1735	1740							1	5	HA MC	*
19	1830	1833	1831						09	1	RO (WWV10-0.9 WWV15-0.5 FFE4-0.3 FFE5-0.3)	*
19	1926	1930	1927						22	1	BO (WWV10-2.2 WWV15-1.2 KKE4-0.6 KKE5-0.8)	1906
19	1928	2005	1940			2+			1+	5	AS A3 A15	1906
19	1929	2010	1935						26	1	A3	*
19	2007	2010	20070						03	1	BO (WWV10-2.6 WWV15-1.6 KKE4-1.0 KKE5-0.9)	*
19	2056	2101	2058						03	1	BO (WWV10-0.3 WWV15-0.2 FFE4-0.1 KKE5-0.1)	*
19	2119	2121							06	1	MC HA BO	*
19	2119	2123	2120						04	1	BO (WWV10-0.4 WWV15-0.3 KKE4-0.3 FFE5-0.3)	2210
19	2230	2232	2231						1+	1	BO (WWV10-0.4 WWV15-0.2 KKE4-0.3 KKE5-0.2)	2258
19	2255	2340	2300						34	1	A3	
19	2258	2309	2300						34	1	BO (WWV10-3.4 WWV15-2.7 FFE4-3.4 KKE5-0.4)	
19	2258	2316	2307	S 1-	25	1+			1+	5	WS OK	
19	2258	2316	2302						1+	5	HA BO	
19	2300	2342	2306						1	1	TY	
20	0711	0745	0719	SL 1+	30	1			2	5	OK JU	0706
20	0713	0735	0719						2	5	MA RO	
20	0714	0812	0724						2	5	TY KU	
20	0725	0815							2	1	KU	
20	1700	1710	1705E						36	1	RO (WWV10-3.6 WWV15-2.6 FFE4-1.0 KKE5-1.4)	1658
20	1700	1730	1715	SL 1+					28	5	MC RE FM HI	
20	1703	1840	1718						1	1	RO (NRA28)	
20	1705		1712						1	5	AS A16	
20	1706	1735U	1710						1	5	AS A3	
20	2015	2348							2	5	MC BO HA (NOISE STORM)	
20	2348	0003							2	5	HA BO	
20	2351	0325		S 3					2+	5	TO AD AH MA NZ OK SY WS CW+ CW++	2351
20	2352	0052	0004						1	5	TY RO HA A9	
20	2353								56	1	A14 AS	
20	2356	24100	23580						56	1	RO (WWV10-5.6 KKE4-5.0 KKE5-5.0)	
21	0000	0015	0003		20	1			3	5	BO MA	2351
21	0014	0018							3	5	MA HA BO	
21	0105	0245	0117		70	3			3	5	HA MA	
21	0110	0114							3	5	MA HA	
21	1415	2400							1	5	MC BO HA (NOISE STORM)	
21	1804	1808	1805						09	1	RO (WWV10-0.9 WWV15-0.5 KKE4-0.3 KKE5-0.3)	
21	1805	1807							1	5	MC BO HA	
21	1835	1839	1836						64	1	RO (WWV10-6.4 WWV15-3.9 KKE4-U KKE5-L)	1835
21	1904	1906							1	5	MC BO HA	
21	2120	2124							1	5	RO HA	
21	2212	2216	2214						02	1	RO (WWV10-0.2 WWV15-0.1)	2207
21	2213	2217							1	5	BO HA	
24	1445	1515	1453						11	1	RO (NPA11)	
24	1450	1448U	1502						2	1	AS	1433
24	1453	1458	1503						2	5	AS A16	
24	1455	1520	1505	SL					1	1	HU WS	
25	0606	0621	0618						1	1	TY	*
26	0709	0851	0730	SL 3+					2	5	OK JU MA PH SW TO CW+ CW++ CW++	0706
26	0711	0751							2	3	KU PH	
26	0712	0806	0732						2	5	TY LO	
26	1354	1359	1356						06	1	RO (WWV10-0.6 KKE4-0.5)	1354
26	2118	2122	2119						03	1	BO (WWV10-0.3 WWV15-0.2 FFE4-0.2 KKE5-0.3)	2120
28	1911	2020	1922						54	5	MA (NRA54) BO (NPA10)	

RIOMETER EVENTS

(PROVISIONAL)

SEPTEMBER 1963

South Pole

26 Mc/s

SEPT. 1963	START UT	END UT	MAX. UT	MAX. ABSORP. TENTHS, db	NO. OF PEAKS	SEPT. 1963	START UT	END UT	MAX. UT	MAX. ABSORP. TENTHS, db	NO. OF PEAKS
1	0125	0224	0137	13	5	16	2320	0010	2334	10	4
1	1010	1534	1237	18	7	17	0212	0244	0216	9	1
1	2046	2134	2112	6	4	17	0410	0524	0431	29	2
2	0044	0135	0048	56	1	17	0640	0952	0657	20	8
2	1026	1031	1027	4	1	17	1042	1126	1122	5	2
3	0126	0216	0154	11	1	17	1150	1330	1221	11	3
3	1438	1708	1528	11	7	17	1535	1544	1541	3	1
4	1314	1640	1459	6	1	17	1723	1802	1748	4	3
5	0046	0218	0052	10	3	18	0050E	0120	0050	11	1
5	1046	1548	1221	11	3	18	0142	0152	0145	10	1
6	0002	0030	0015	19	2	18	0216	0430	0247	21	3
6	0113E	0146	0113	4	2	18	1014	2044	1400	11	13
6	1346	1556	1414	13	2	18	2220	2230	2224	8	1
8	0404	0511	0418	4	1	19	0018	0142	0040	21	1
8	1046	1130	1106	4	1	19	0400	0430	0404	23	1
8	1306	1350	1329	7	1	19	0502	0644	0512	11	3
9	0334	0416	0342	18	1	19	0702	0746	0724	9	1
9	1302	1748	1519	28	4	19	1120	1222D	1222	24	3
10	0314	0408	0323	7	2	20	0904	1239	1113	14	3
10	0850	1856	1417	11	8	20	1644	1730	1651	9	1
10	1954	2024	2021	6	2	20	1928	2004	1944	11	1
11	0110	0138	0116	18	3	20	2218	2258	2227	4	1
11	1000	1550	1033	20	6	21	1412	1648	1530	50	1
11	1744	1822	1752	4	5	22	0443	0712	0512	28	5
11	2333	2359	2340	23	3	22	0802	1340	0816	56	3
12	0116	0236	0119	49	3	22	1550	1936	1810	8	2
12	0258	0407	0306	8	2	22	2008	2122	2047	7	1
12	1318	1644	1420	17	1	22	2140	2309	2203	3	3
12	1734	1830	1812	4	2	23	0040E	0114	0040	11	1
13	0106	0115	0109	4	1	23	0242	0500	0323	14	1
13	0210	0259	0216	10	4	23	0517	0632	0540	75	2
13	1926	1935	1931	4	1	23	0716	1108	0812	50	6
13	2331	0044	0000	25	3	23	1156	1630	1309	16	6
14	0448	0640	0459	16	2	23	1650	1854	1753	13	6
14	0654	0800	0659	10	1	24	1630	1858	1843	4	1
14	0816	0952	0828	8	4	25	0206	0410	0212	28	4
14	1430	1510	1435	6	2	25	1202	1832	1417	23	8
14	1550	1732	1718	6	2	25	2026	2130	2106	4	3
14	1846	1956	1850	3	2	26*	0423	0700	0511	42	8
14	2141	2244	2152	102	4	26	2330	2348	2338	22	2
15	0122	0145	0132	7	1	27	1322	1710	1329	20	9
15	0235	0333	0259	22	3	27	2232	2312	2249	40	2
15	0608	0900	0621	14	2	28	0200	0350	0245	41	2
15	0950	1310	1225	17	3	28	0447	0724	0457	19	5
15	1338	1640	1436	20	8	28	1404	1910	1657	17	15
15	2311	0020	2317	19	1	28	2232	2350	2247	73	6
16	0413	0520	0416	15	3	29	0114	0618	0139	92	3
16	1128	1624	1227	47	8	29	0906	1906	1347	30	7
16	1640	1754	1718	13	2	29	2249	2326	2257	23	1
16	1813	1840	1828	5	2	30	0108	0316	0123	75	3
						30	0924	1152	1051	10	1
						30	1244	1810	1538	22	5

COMMERCE - STANDARDS - BOULDER

* There is a polar cap absorption event beginning 0740 UT September 26, 1963 and lasting into September 29, 1963. It was not reported in the preliminary event listing above.

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES
OCTOBER 1963

IVa

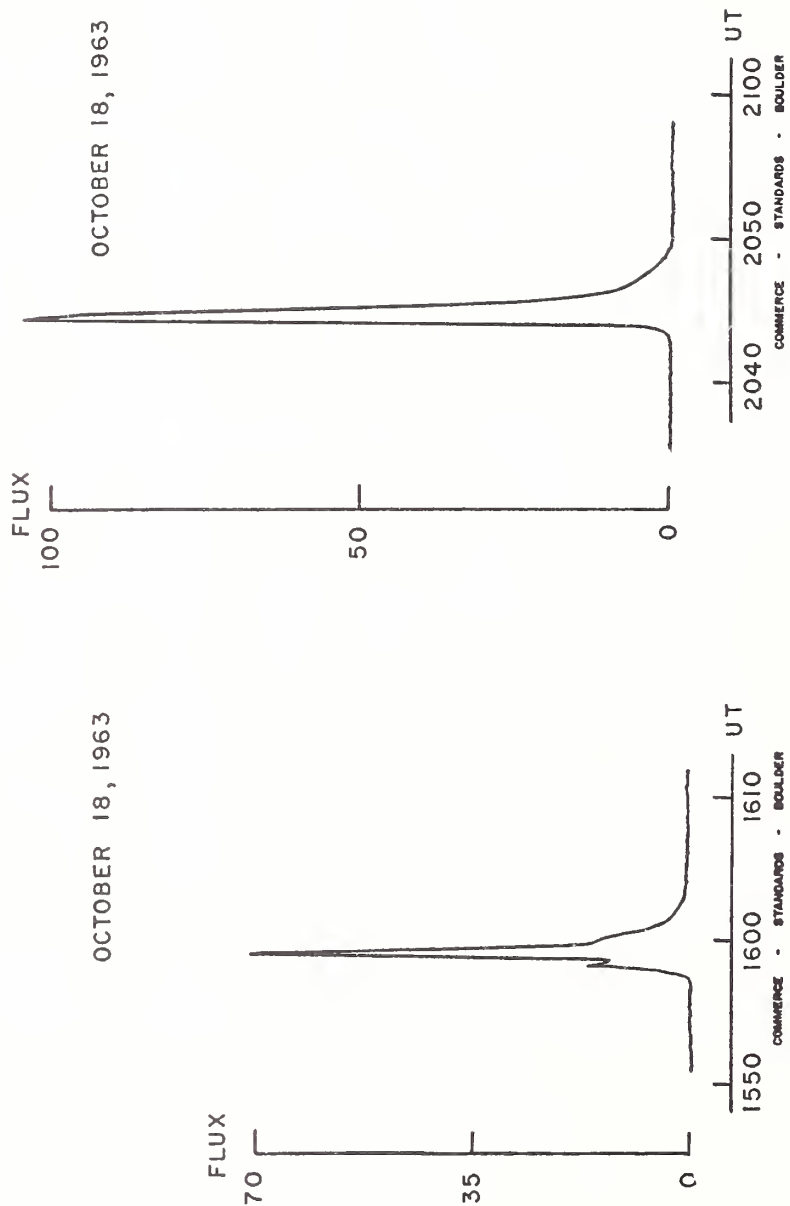
ARO - OTTAWA

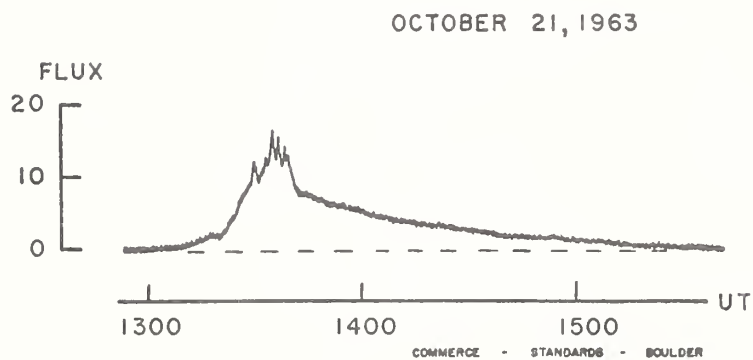
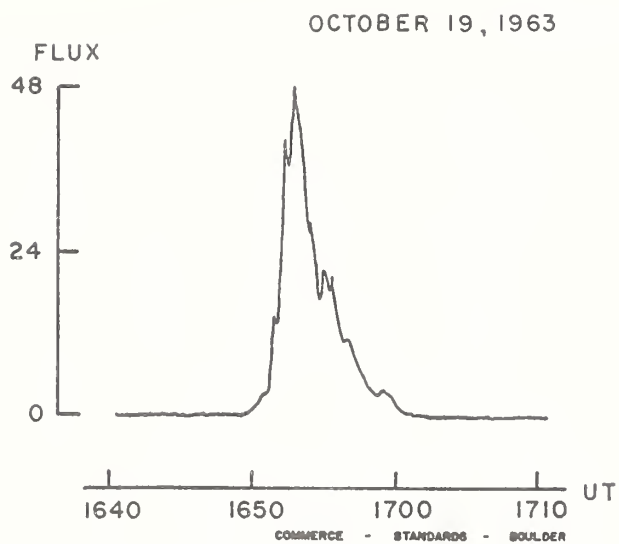
2800 Mc/s

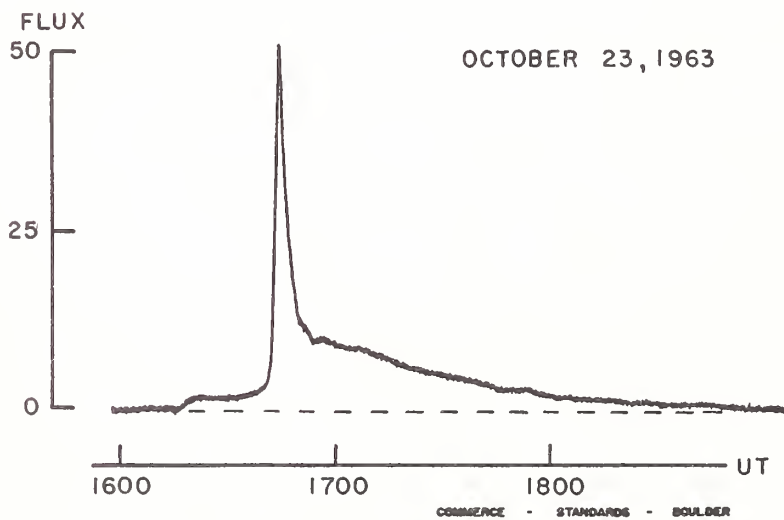
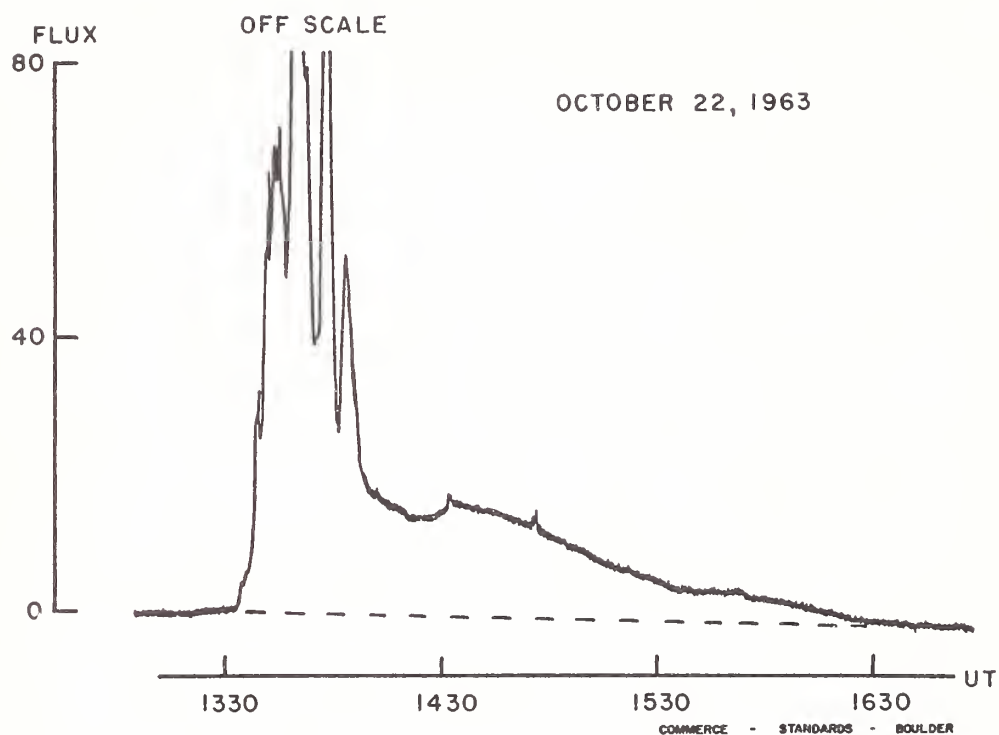
OCTOBER 1963	U R A N E	DESCRIPTIVE TYPE	START UT	DURATION HRS. MIN.	MEAN FLUX	MAXIMUM		REMARKS
						TIME	FLUX	
14	1	Simple 1 f	1658.8	0.8	1.5	1659.1	3	
16	3	Simple 3	1205	2 18	5	1238	10	
17	2	Simple 2	1342	2.5	3	1343	10	
	4	Post Increase		5.5	1.5		1	
18	2	Simple 2 f	1557	4.5	20	1559.2	71	
	4	Post Increase		7.5	1.5		3	
18	2	Simple 2	2043.3	5.8	23	2044.5	105	
19	2	Simple 2 f	1649.3	11.8	15	1653	48	
20	3	Simple 3	2056	>29	--	Indet.	6	
21	3	Simple 3 A	1304	2 11	4	Indet.	8	
	7	Period of Irregular Activity	1327.5	15.5	5	1335	9	
22	3	Simple 3 A	1333	2 45	7	1436	16	
	6	Complex f	1333	45	--	Indet.	>95	
	1	Simple 1	1431.5	2.5	1	1432.5	2	
	6	Complex	1455	2	0.8	1456.5	2.5	
23	3	Simple 3 A	1616	2 39	4	1653	10	
	2	Simple 2	1641	12	20	1644	45	
23	1	Simple 1	1933	1	0.5	1933.5	1	
24	1	Simple 1	1400.8	2	0.7	1401.3	1.5	
24	1	Simple 1 f	1436.8	0.8	0.6	1437	1.2	
24	3	Simple 3 A f	1443	1 39	1.2	1501	2.5	
	1	Simple 1	1453.5	2	1	1454.5	2	
25	6	Complex f	1155	11	25	1201	50	
	4	Post Increase		34	8		16	
25	3	Simple 3 A	1312	2 46	4.5	1329	9	
	1	Simple 1	1401	6	0.7	1404	1.5	
25	3	Simple 3 f	1752	1 16	2	1815	4	
26	1	Simple 1	1345.5	6	1	1348.5	2	
26	3	Simple 3	1510	1 05	2.5	1550	5	
26	3	Simple 3 A	1836	2 10	11	1908	22	
	1	Simple 1	1840	4	3	1841.5	6	
	2	Simple 2 f	1902	3	5	1902.7	9	
27	3	Simple 3 f	1343	27	1.5	1346	3	
28	3	Simple 3	1622	32	0.8	1624.5	1.5	

COMMERCE - STANDARDS - BOULDER

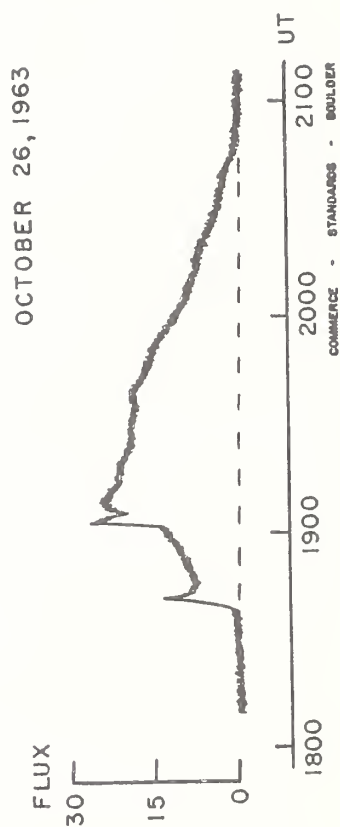
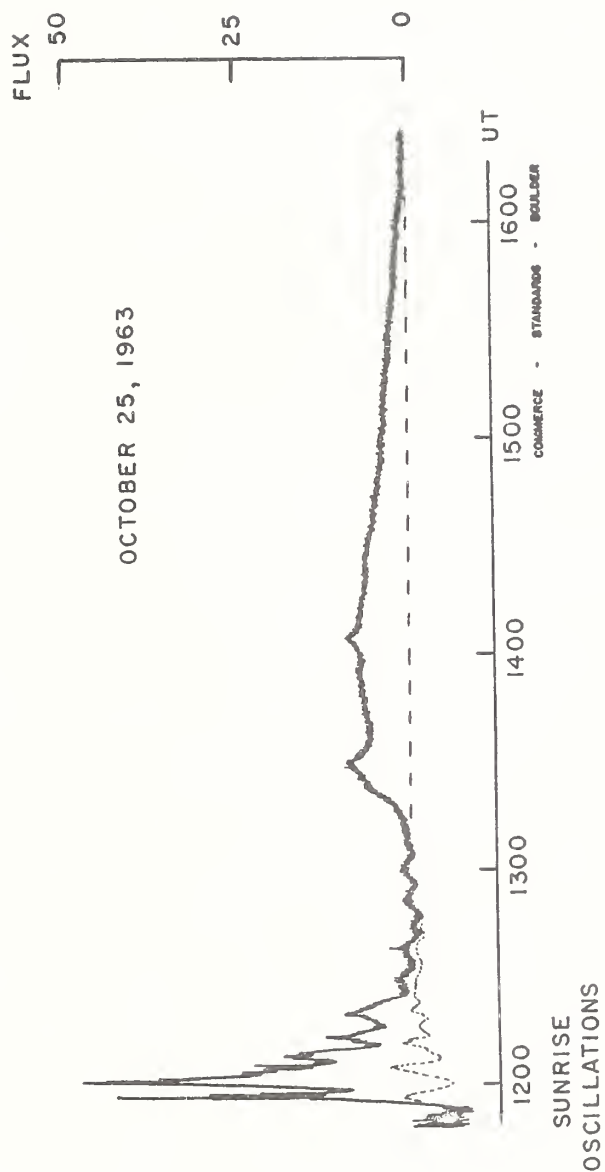
SELECTED 2800 Mc/s SOLAR NOISE BURSTS
ARO-OTTAWA, CANADA





SELECTED 2800 Mc/s SOLAR NOISE BURSTS
ARO - OTTAWA, CANADA

SELECTED 2800 Mc/s SOLAR NOISE BURSTS
ARO - OTTAWA, CANADA

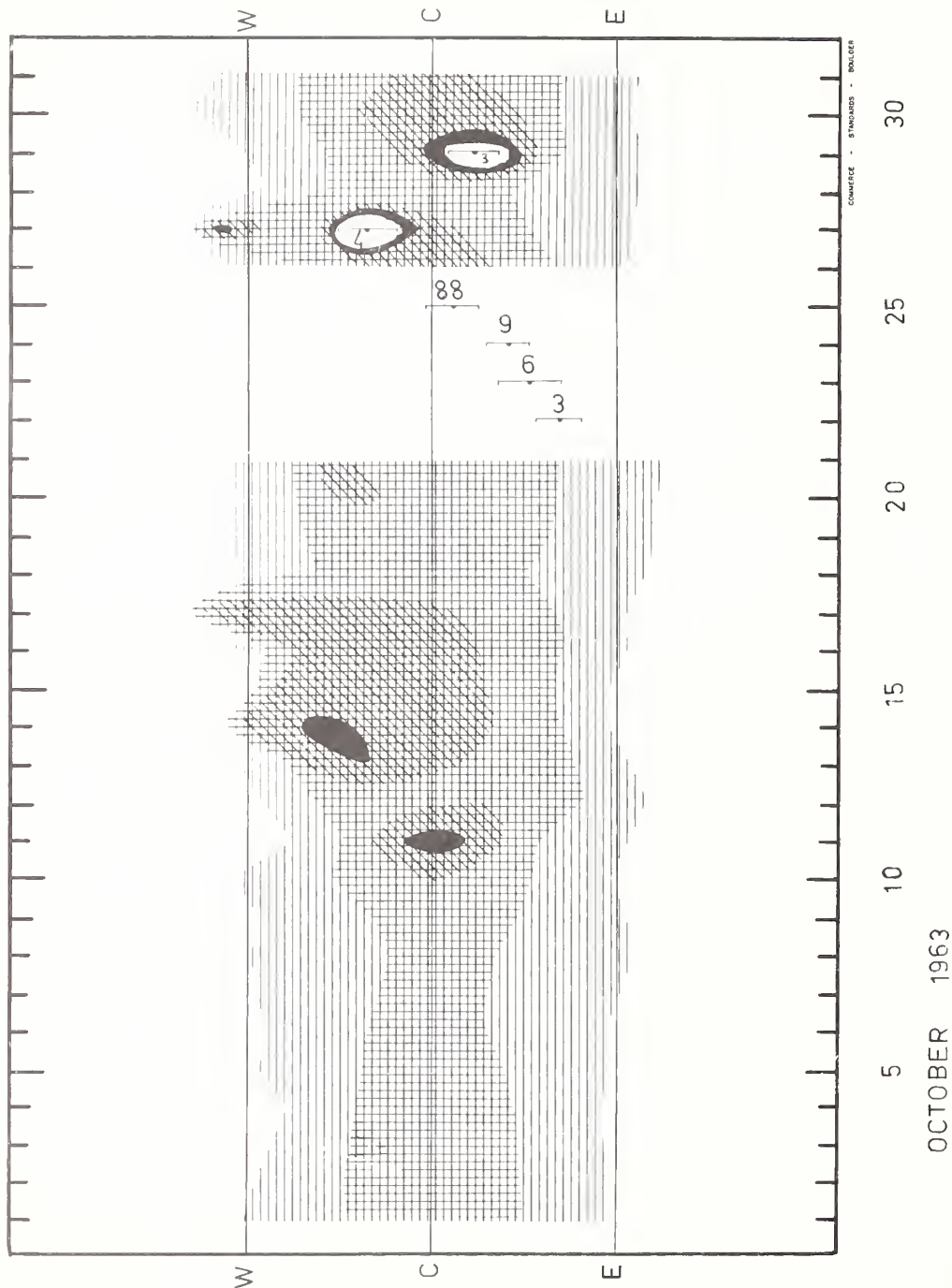


SOLAR RADIO EMISSION INTERFEROMETRIC OBSERVATIONS

OCTOBER 1963

NANÇAY

169 Mc/s



SOLAR RADIO EMISSION OUTSTANDING OCCURRENCES

IVg

OCTOBER 1963

NBS BOULDER

108 Mc/s

Oct. 1963	TYPE	START UT	TIME OF MAXIMUM UT	DURATION MINUTES	INTENSITY
5	3	1449.0	1449.3	2.0	3
13	6	1313 E		656 D	1
14	7	1912	1950 U	296 D	2
15	6	1315 E		315 D	1
16	6	1316 E		247 D	1
18	9	1557	1605	21	3
18	9	2043	2045	17	3
21	7	1355	1410	45	1
21	7	1655	1845	170	1
26	2	1910		9	1
26	7	2025	2107	206 D	2
27	3	1700.0	1700.5	2.1	3

COMMERCE - STANDARDS - BOULDER

NOMINAL TIMES OF OBSERVATION

OCTOBER 1963

NBS BOULDER

108 Mc/s

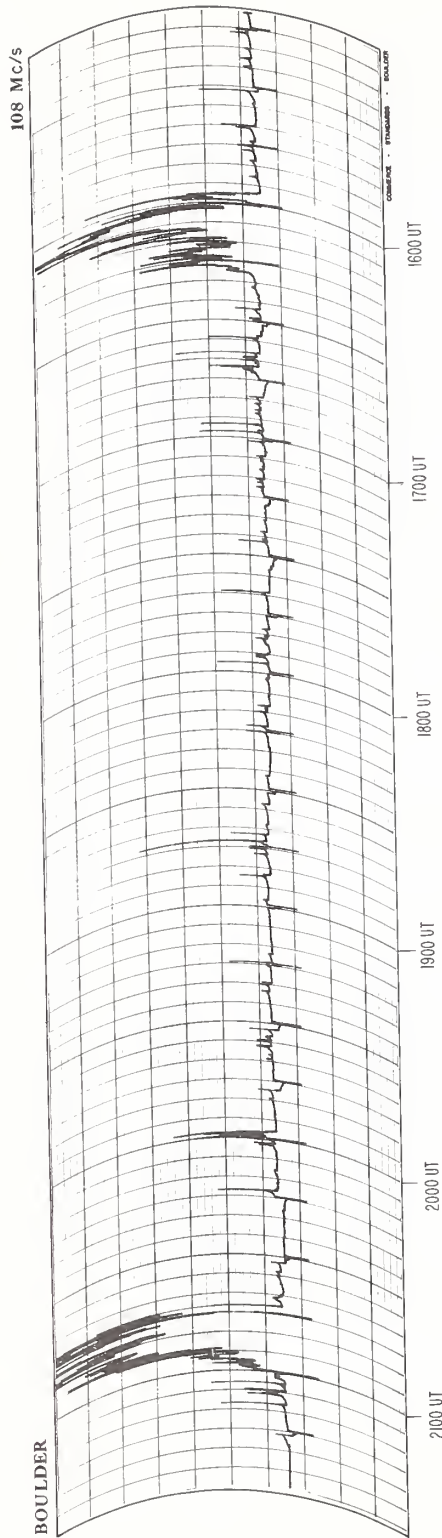
Oct. 1963	HOURS OF OBSERVATION	UT	Oct. 1963	HOURS OF OBSERVATION	UT
1	1301-0028	I 1912-1933	16	1316-0005	I 1820-1846
2	1302-0026		17	1317-0003	
3	1303-0025		18	1318-0002	
4	1304-0023		19	1319-0000	
5	1305-0021		20	1320-2359	
6	1306-0020	I 2054-2123	21	1322-2245	
7	1307-0018		22	1640-2356	
8	1308-0017		23	1324-2000;	
9	1309-1901;			2300-2355	
	2311-0015		24	1325-2124;	
10	1310-0014			2225-2353	
		I 2055-2215 (1)	25	1326-2352	
11	1311-0012		26	1327-2351	
12	1312-0011		27	1328-2349	
13	1313-0009		28	1329-2348	
14	1314-0008		29	1330-2347	
15	1315-0006		30	1331-2345	
			31	1333-2344	

COMMERCE - STANDARDS - BOULDER

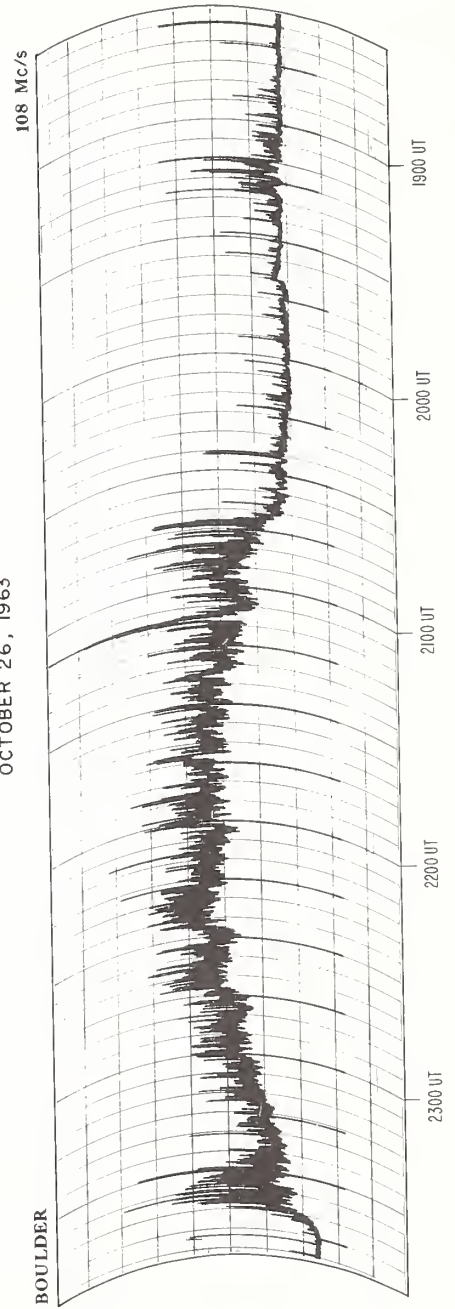
(1) Atmospherics

SOLAR RADIO EMISSION

OCTOBER 18, 1963



OCTOBER 26, 1963



SOLAR RADIO EMISSION SPECTRAL OBSERVATIONS

IVI

OCTOBER 1963

High Altitude Observatory
Boulder

7.6-41 Mc/s

Date 1963	Bursts			Frequency Range Mc/s	Date 1963	Bursts			Frequency Range Mc/s
	Type	Time (U.T.)	Inten- sity			Type	Time (U.T.)	Inten- sity	
6 Oct	III	2057.15-2057.30	1-	21-41	cont. 10 Oct	III	2045.30-2045.45	1-	22-37
	III	2058-2058.15	1-	21-41		III	2112-2112.15	1-	21-36
	III	2200.45-2201	1-	22-41		III	2116.30-2116.45	1-	22-41
	III	2228.30-2228.45	1-	32-41		III	2118-2118.15	1-	22-36
7	III	1818.15-1818.30	1-	20-41		III	2119.30-2119.45	1-	21-39
	III	1819.45-1820	1-	22-41		III	2126-2126.15	1	21-41
8	III	1825.30-1825.45	1-	24-41		III	2150-2150.15	1-	22-41
	III	1842.45-1843.15	1	20-41		III	2213.30-2213.45	1-	23-34
9	III	1448.45-1449	1-	18-41	11	III	2316.30-2316.45	1	20-41
	III	1558-1558.15	1-	22-41		III	1552-1552.15	1-	25-34
	III	1607.30-1607.45	1-	21-32		III	1613-1613.15	1-	26-38
	III	1615.45-1616	1-	19-41		III	1832.30-1833	1-	20-41
	III	1630.15-1630.30	1-	20-29		III	1905.45-1906.45	2	19-41
	III	1700.15-1700.45	1-	21-41		III	1911.45-1912	1-	20-41
	III	1836.30-1836.45	1-	24-38		III	1912.30-1912.45	1-	20-41
	III	1847.30-1847.45	1-	21-41		III	1940-1940.30	2	19-41
	III	1851-1851.15	1-	19-41		III	1950-1950.30	1-	20-35
	III	1927-1927.15	1-	20-30		III	1958.45-1959	1	20-41
	III	2032.30-2032.45	1-	22-33		III	2001-2001.15	1	20-41
	III	2107.30-2108.15	1-	19-41		III	2003.15-2003.45	2	19-41
	III	2211.45-2212	1-	22-38		III	2048.15-2048.45	1-	22-41
	III	2213.15-2213.30	1-	22-34		III	2050-2050.15	1-	19-41
	III	2223-2223.15	1-	20-41		III	2135.30-2136	1	20-41
	III	2225.30-2225.45	1-	20-41		III	2158.15-2158.45	1	19-41
	III	2226-2226.15	1-	20-41		III	2159.15-2200.15	2	18-41
	III	2227.30-2228	1-	20-41		III	2201-2201.45	2	18-41
	III	2228.30-2228.45	1-	20-41		III	2208-2208.15	1-	21-41
	III	2237.30-2237.45	1-	20-41		III	2216.15-2216.30	1-	20-38
10	III	2306.15-2306.30	1-	21-41		III	2315.30-2316	1	21-41
	III	1346.45-1347	1-	20-36		III	2323-2323.15	1-	22-34
	III	1347.45-1348	1-	20-32	12	III	2326.30-2326.45	1-	20-36
	III	1353-1353.15	1-	22-35		III	1320.15-1320.30	1-	21-36
	III	1424.45-1425.15	1-	21-41		III	1336.15-1336.45	1-	27-37
	III	1433.30-1433.45	1-	19-41		III	1452-1453.30	1	19-41
	III	1452.15-1452.30	1-	22-35		III	1535.30-1535.45	1-	20-33
	III	1453.30-1453.45	1-	21-35		III	1609-1609.45	1	17-41
	III	1456-1457.15	2	20-41		III	1613-1613.15	1-	20-41
	III	1516.15-1516.30	1-	21-34		III	1614.15-1614.30	1-	20-38
	III	1517.45-1518	1-	21-38		III	1622.30-1622.45	1-	20-38
	III	1550-1550.15	1-	23-41		III	1626.15-1626.30	1-	21-41
	III	1552-1553.15	2	19-41		III	1632-1632.15	1-	22-41
	III	1613.45-1614	1-	29-41		III	1719.30-1720	1-	23-38
	III	1627-1627.15	1-	21-40		III	1817.30-1817.45	1-	23-41
	III	1650.45-1651	1-	21-41		III	1844-1844.15	1-	21-41
	III	1710.30-1710.45	1-	24-35		III	1854.15-1854.30	1-	20-41
	III	1744-1744.15	1-	22-34		III	1907-1907.15	1-	21-34
	III	1937-1937.15	1-	24-32		III	1920.45-1921	1-	21-41
	III	1942.30-1942.45	1-	22-39		III	1927.30-1927.45	1-	24-32
	III	1945.45-1946	1-	23-41		III	1936.45-1937	1-	22-32
	III	1948.30-1948.45	1-	21-41		III	1940.45-1941	1-	27-41
	III					III			

SOLAR RADIO EMISSION SPECTRAL OBSERVATIONS

OCTOBER 1963

High Altitude Observatory
Boulder

7.6-41 Mc/s

Date	Bursts			Frequency Range Mc/s	Date	Bursts			Frequency Range Mc/s
1963	Type	Time (U.T.)	Inten- sity		1963	Type	Time (U.T.)	Inten- sity	
cont.					cont.				
12 Oct	III	2009.45-2010	1-	19-32	18 Oct	III	2013.30-2014	1	20-41
	III	2010.15-2010.30	1-	19-32		continuum	2043.30-2105	3	7-41
	III	2018.15-2018.30	1-	20-35		II d	2057-2100	2	18-41
	III	2040.15-2040.30	1-	22-35		II	2120-2128	1-	19-41
	III	2050.30-2050.45	1-	20-33		III	2318.15-2318.30	1-	22-41
	III	2107-2107.15	1-	24-31		III	2322-2324.45	1	20-41
	III	2113-2113.30	1-	20-41		III	2326.30-2326.45	1-	21-41
	III	2122-2122.15	1-	21-30		III	2327.15-2327.30	1-	21-41
	III	2144.15-2144.30	1-	20-33		III	2340.15-2344.15	1+	17-41
	III	2229.30-2229.45	1-	24-41		III	2356-2358.15	1-	20-29
	III	2311.30-2311.45	1-	20-41	19	III	1652.15-1653.15	2	15-41
	III	2354-2354.15	1-	20-32		III	1656.15-1657	2	14-41
13	continuum	b1301-a2420	1	19-41		III	1701.30-1703	1	22-41
	III	1413.15-1413.45	2	19-41		IV	1702-1837	1	23-41
	III	1418.45-1419	1+	20-41		III	1709-1710.30	2	18-41
14	continuum	1355-1850	1-	19-41		III	1915.30-1915.45	1-	19-41
	continuum	1910-2020	1	19-41		III	1919.45-1920	1-	21-35
	continuum	2020-2119	1-	19-41		III	1923.15-1923.30	1-	21-38
	continuum	2119-2224	2	19-41		III	1924.30-1925.30	2	19-41
	continuum	2224-a2340	1-	19-41		III	2005.45-2006	1-	20-41
15	III	1537.45-1538.30	1-	22-41		III	2011.15-2011.30	1-	23-35
	continuum	1830-1926	1-	19-41		III	2013.30-2013.45	1-	20-36
	III	1838.45-1839	1	20-41		III	2206.30-2207	1-	24-21
	III	1843.15-1844	1	20-41		III	2307.30-2307.45	1-	29-41
	III	1925.15-1926	1-	28-41		III	2325.15-2328.30	1-	23-41
16	continuum	b1348-1855	1-	22-41		III	2330.15-2331	1-	25-41
17	III	1719-1719.15	1-	24-41		III	2331.45-2332.15	1-	29-38
	No observ.	2120-2300				III	2334.30-2334.45	1-	29-41
18	III	1452.30-1453	1-	26-37	20	III	2337.30-2337.45	1-	32-41
	III	1527-1527.30	1-	24-38		III	1345.45-1346	1-	24-40
	III	1540-1541	1-	23-41		III	1348.30-1348.45	1-	28-34
	III	1545-1546	1	24-41		III	1417.15-1417.30	1-	28-38
	III	1547.15-1547.30	1-	22-38		III	1423-1423.45	1-	22-41
	III	1551.30-1551.45	1-	28-41		III	1425.45-1426	1-	21-41
	III	1555.15-1555.45	1-	24-34		III	1432-1433	2	20-41
	continuum	1557.45-1613.15	3	18-41		III	1437.45-1438	2	19-21
	IV	1613.15-1733	1	15-41		III	1450.30-1451	1-	27-38
	III	1807.15-1808.45	1	20-41		continuum	1501-1523	1-	20-41
	III	1827-1827.15	1-	31-41		III	1511-1511.15	1	20-41
	III	1900-1900.15	1-	22-33		III	1511.45-1512.15	1	20-41
	III	1907.30-1907.45	1	20-41		III	1629.30-1629.45	1-	20-32
	III	1914.15-1916.45	1	20-41		III	1643.45-1644	1-	23-41
	III	1933.30-1934.45	1	19-41		III	1647.15-1647.30	1-	20-37
	III	1935.30-1936	1	19-41		III	1650.30-1650.45	1-	21-41
	III	1936.15-1937.15	2	19-41		III	1739.15-1739.30	1-	20-41
	III	1943-1943.15	1-	22-41		III	1808.45-1809	1-	19-41
	III	1944-1944.15	1-	24-41		III	1809.30-1812.15	1-	21-41
	III	1949-1949.15	1-	24-38		III	1836.15-1836.30	1-	22-41
	III	2006-2006.15	1	25-35		III	1912.15-1912.30	1-	23-37
	III	2007-2008.15	1	20-41		III	1924.15-1924.30	1-	29-39

d = harmonic structure

COMMERCE - STANDARDS - BOULDER

SOLAR RADIO EMISSION SPECTRAL OBSERVATIONS

IVk

OCTOBER 1963

High Altitude Observatory
Boulder

7.6-41 Mc/s

Date 1963	Bursts			Frequency Range Mc/s	Date 1963	Bursts			Frequency Range Mc/s
	Type	Time (U.T.)	Inten- sity			Type	Time (U.T.)	Inten- sity	
cont. 20 Oct	III	1930.30-1931.45	2	20-41	cont. 27 Oct	III	1406.15-1406.30	1-	24-29
	continuum	1931.45-1937	1-	22-41		III	1411-1411.15	1-	20-41
	III	1950.30-1950.45	1-	21-41		III	1417.15-1417.30	1-	19-36
	III	1956.15-1957.30	2	19-41		III	1542.45-1543	1-	24-35
	III	2001-2001.30	1	19-41		III	1551.30-1551.45	1-	22-35
	III	2006.30-2006.45	1	19-41		III	1552.45-1553	1-	25-32
	III	2007.15-2007.45	1	20-41		III	1554.45-1555	1-	28-34
	III	2008-2008.30	1+	20-41		continuum	1603-2230	1-	20-41
	III	2013.15-2013.30	1-	22-41	28	continuum	1600-1640	1-	22-41
	III	2026.15-2026.30	1-	27-41		continuum	1848-1932	1-	26-35
	III	2044.30-2046.30	1-	21-41	29	III	1447.15-1447.30	1-	28-41
	III	2256-2256.30	1-	23-41		III	1503-1503.30	1-	25-31
	continuum	2306-2337	1-	23-41		III	1515.45-1516.15	1	21-41
	III	2312.30-2312.45	1-	25-41		III	1646-1646.15	1-	29-39
	III	2328-2328.30	1-	23-41		III	1854.45-1855.15	1-	31-41
21	continuum	b1350-a2350	1	20-41		III	1949.45-1950.30	2	19-41
22	III	1312.15-1313	1-	28-41		III	2153.45-2154	1-	23-41
	continuum	b1321-1356	1-	20-41		III	2230-2230.30	1-	29-41
	III	1351-1354.45	1	21-41		III	2307.15-2307.30	1-	28-41
	II	1356.30-1418	3	20-41		III	2329-2329.15	1-	29-41
	IV	1418-1600	2	20-41		III	2335.30-2336.15	1-	26-41
	continuum	1600-a2331	1	19-41	30	III	1956.45-1957	1-	33-41
	III	2238.45-2242.30	2	22-41		III	2019.30-2019.45	1-	27-41
23	continuum	b1320-a2338	1	20-41		III	2058.30-2100.15	1	20-41
24	continuum	b1313-a2050	1	18-41		III	2150-2150.15	1-	28-41
	No observ.	2050-2359				III	2219.15-2219.45	1-	29-41
25	continuum	b1320-a2130	1	20-41		III	2314.45-2315.15	1	27-41
	No observ.	2130-2326				III	2328.45-2329	1-	29-41
26	continuum	b1331-a2340	1	20-41	31	III	1515-1516.15	1-	28-41
27	III	1344.30-1344.45	1-	23-27		III	1538.15-1538.30	1-	36-41
						No observ.	2030-2400		

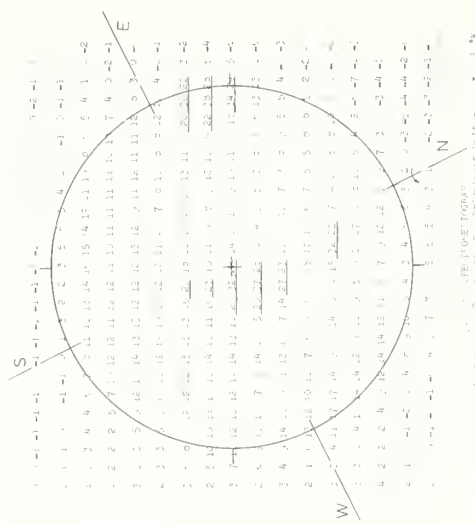
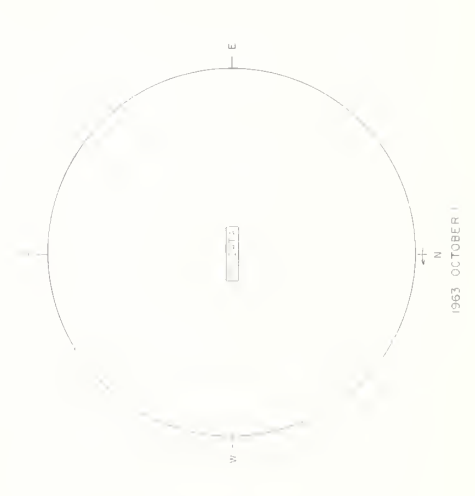
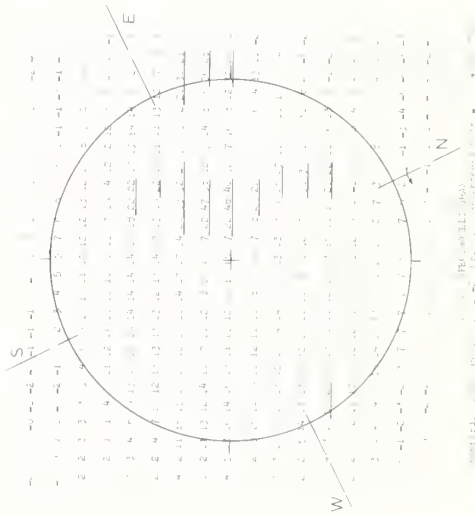
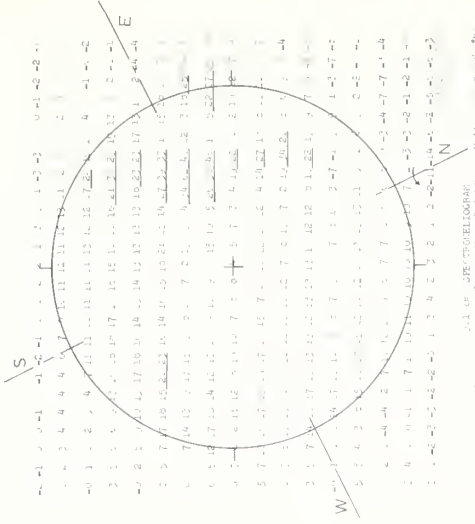
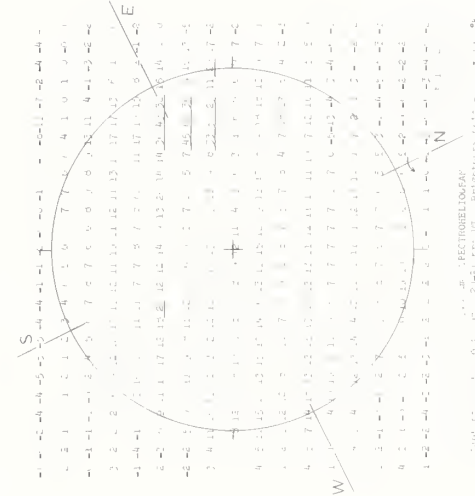
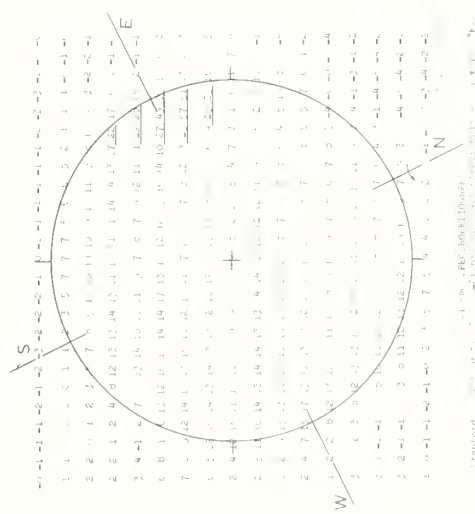
COMMERCE - STANDARDS - BOULDER

SOLAR RADIO EMISSION SPECTROHELIOGRAMS

OCTOBER 1963

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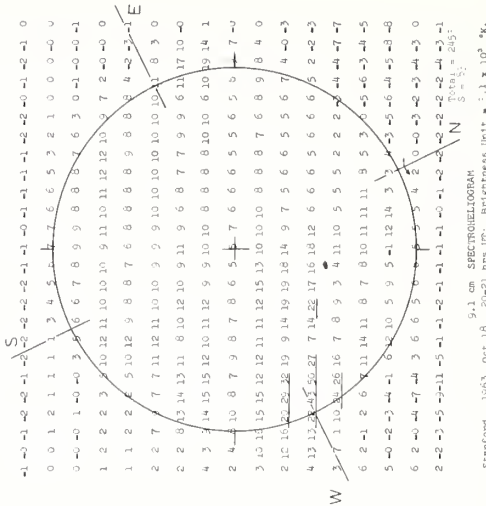
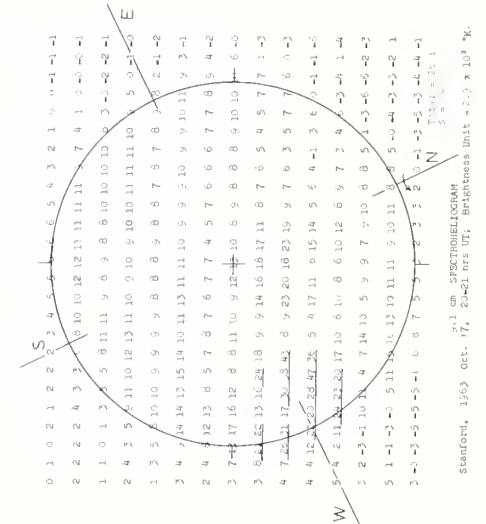
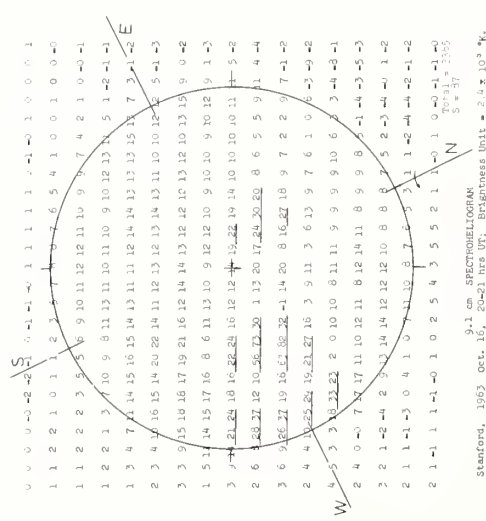
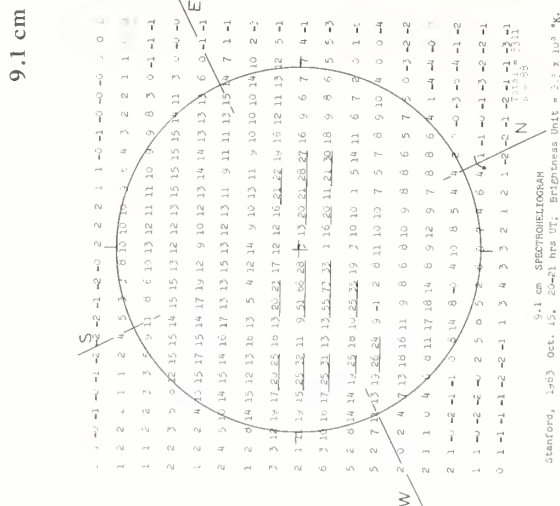
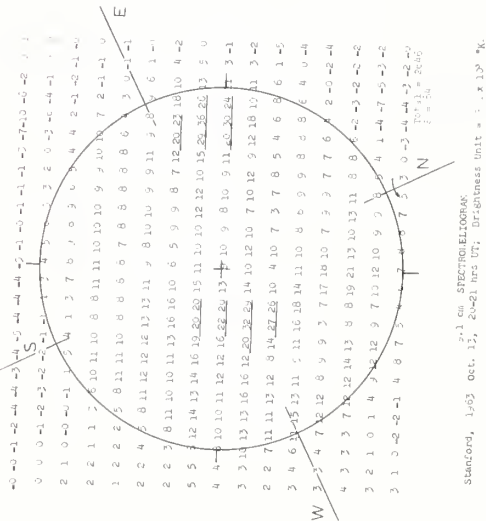
9.1 cm



SOLAR RADIO EMISSION SPECTROHELIOGRAMS

OCTOBER 1963

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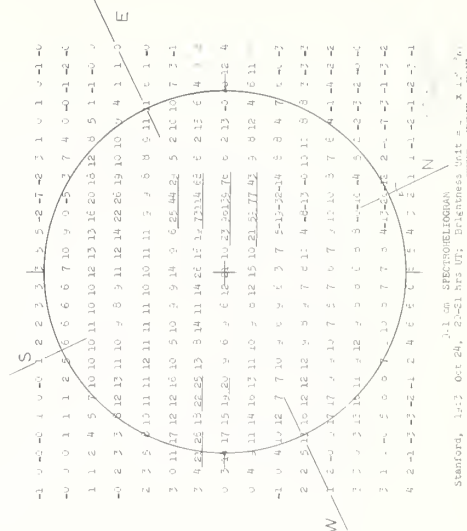
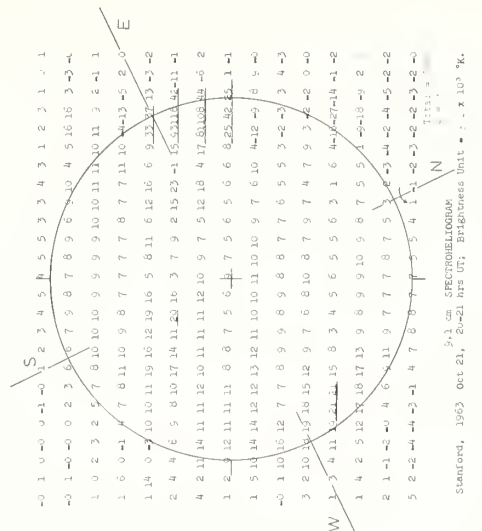
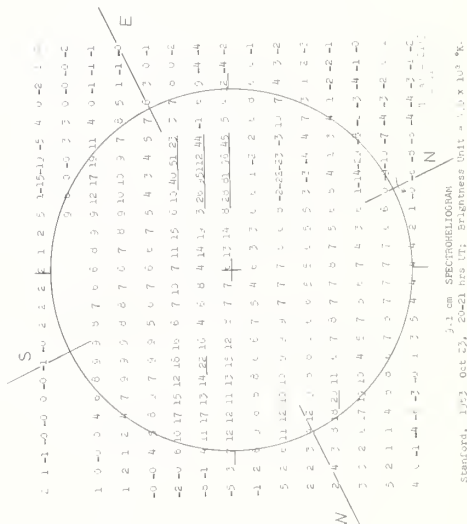
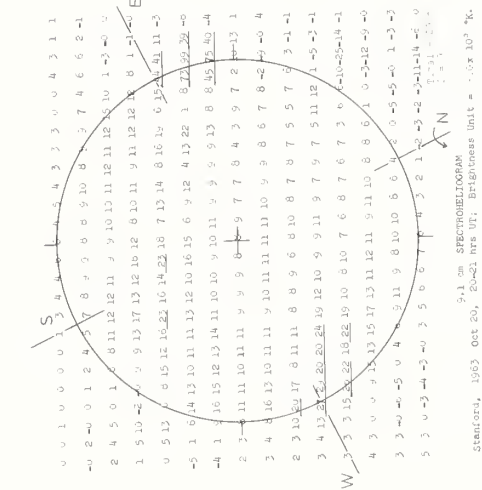
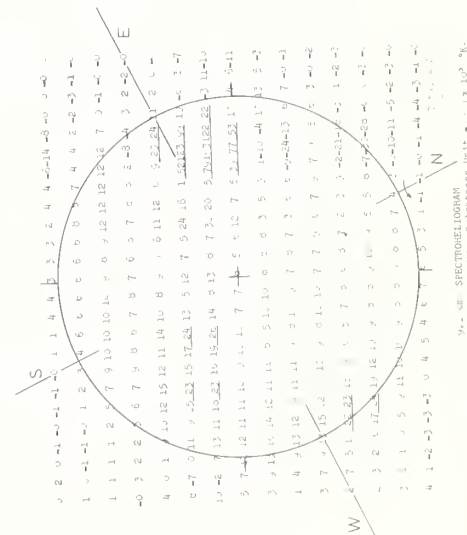
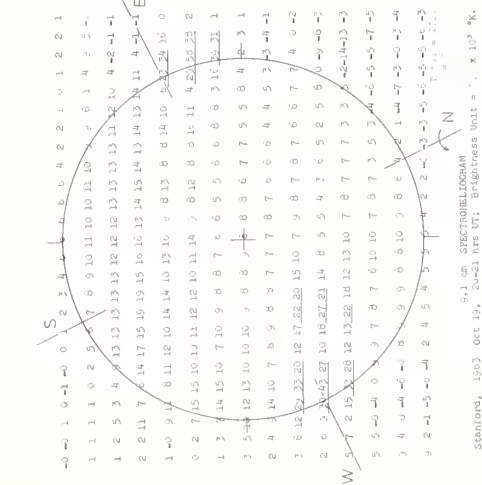


SOLAR RADIO EMISSION SPECTROHELIOGRAMS

OCTOBER 1963

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9.1 cm

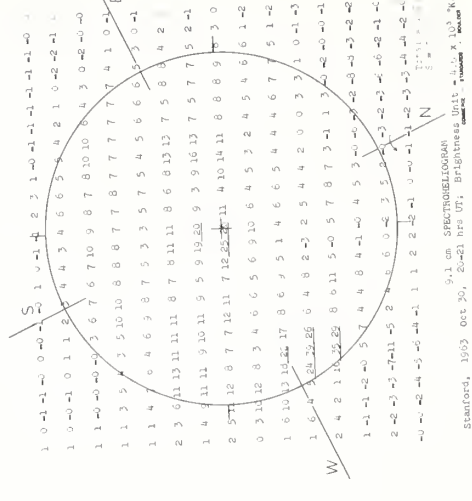
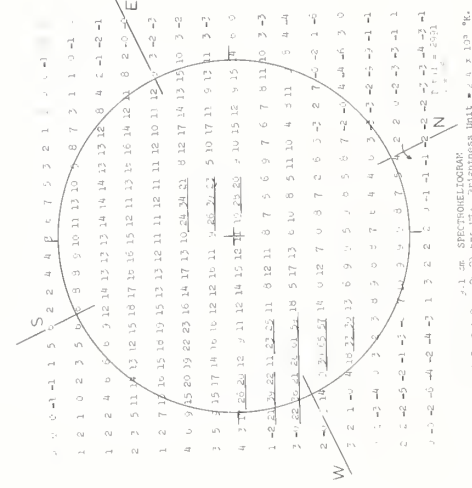
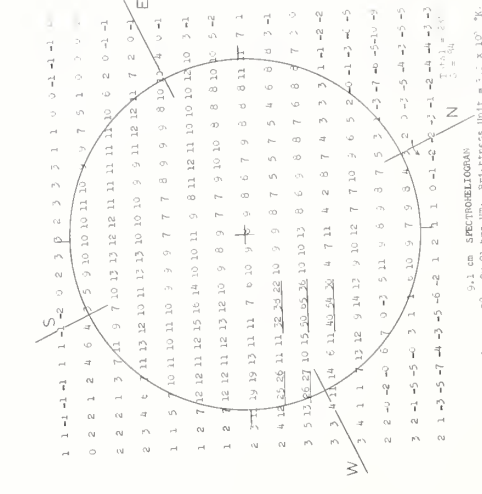
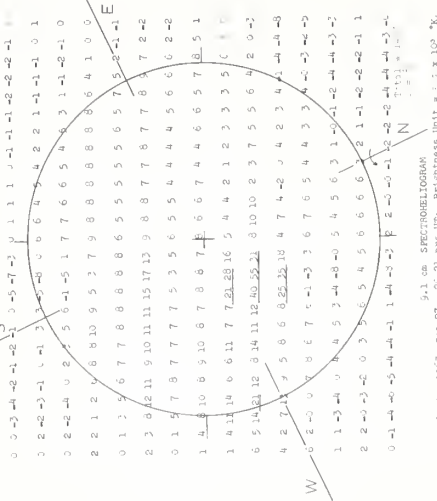
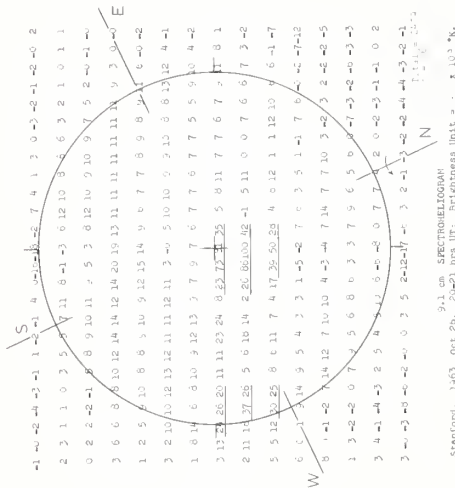
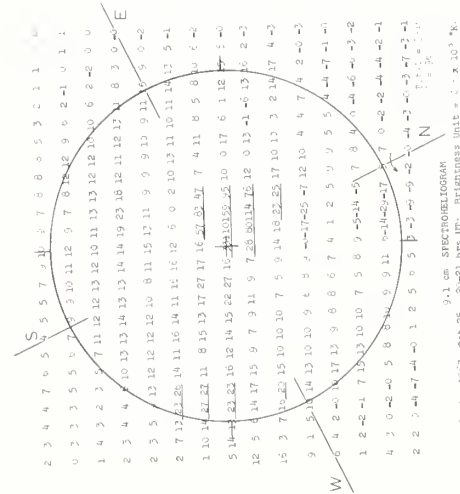


SOLAR RADIO EMISSION SPECTROHELIOGRAMS

OCTOBER 1963

STANFORD

9.1 cm

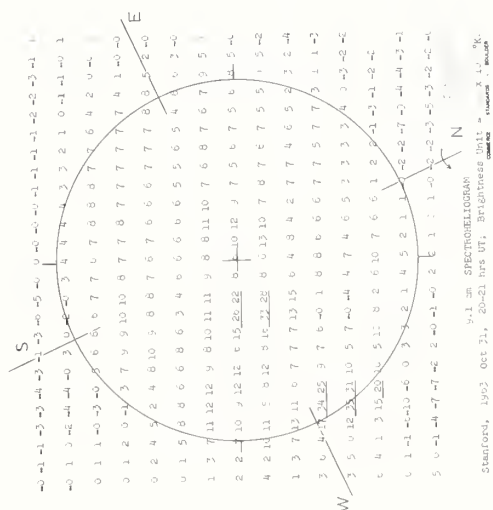


SOLAR RADIO EMISSION SPECTROHELIOGRAMS

OCTOBER 1963

9.1 cm

STANFORD



COSMIC RAY INDICES

(Climax Neutron Monitor)

IGC Station B 305

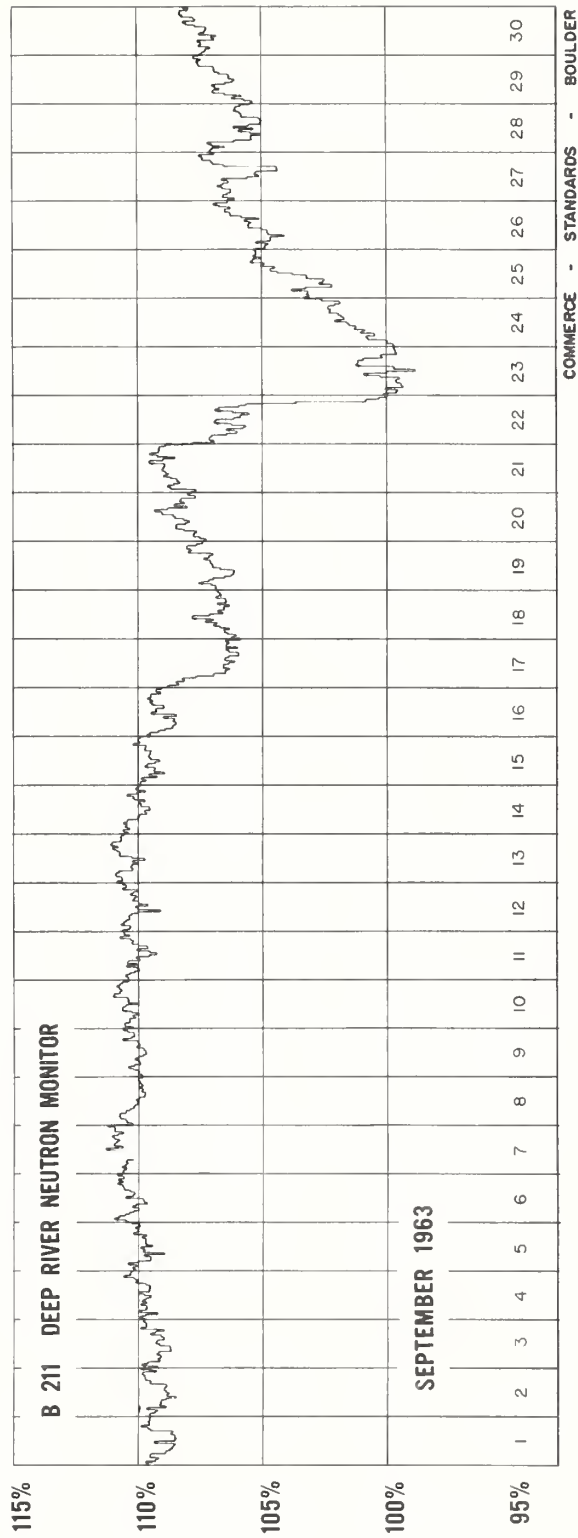
SEPTEMBER 1963

Sept. 1963	Daily average counts/hr*	Sept. 1963	Daily average counts/hr*
1	3188.1	16	3210.9
2	3189.1	17	3119.3
3	3189.3	18	3106.2
4	3206.1	19	3117.3
5	3203.0	20	3132.5
6	3208.0	21	3148.0
7	3208.8	22	3068.6
8	3202.5	23	2902.8
9	3198.1	24	2937.9
10	3206.1	25	3034.9
11	3215.6	26	3069.2
12	3205.4	27	3087.3
13	3212.2	28	3111.8
14	3242.8	29	3103.4
15	3218.8	30	3161.3

*Scaling Factor 128.

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COSMIC RAY INDICES (Pressure Corrected Hourly Totals)



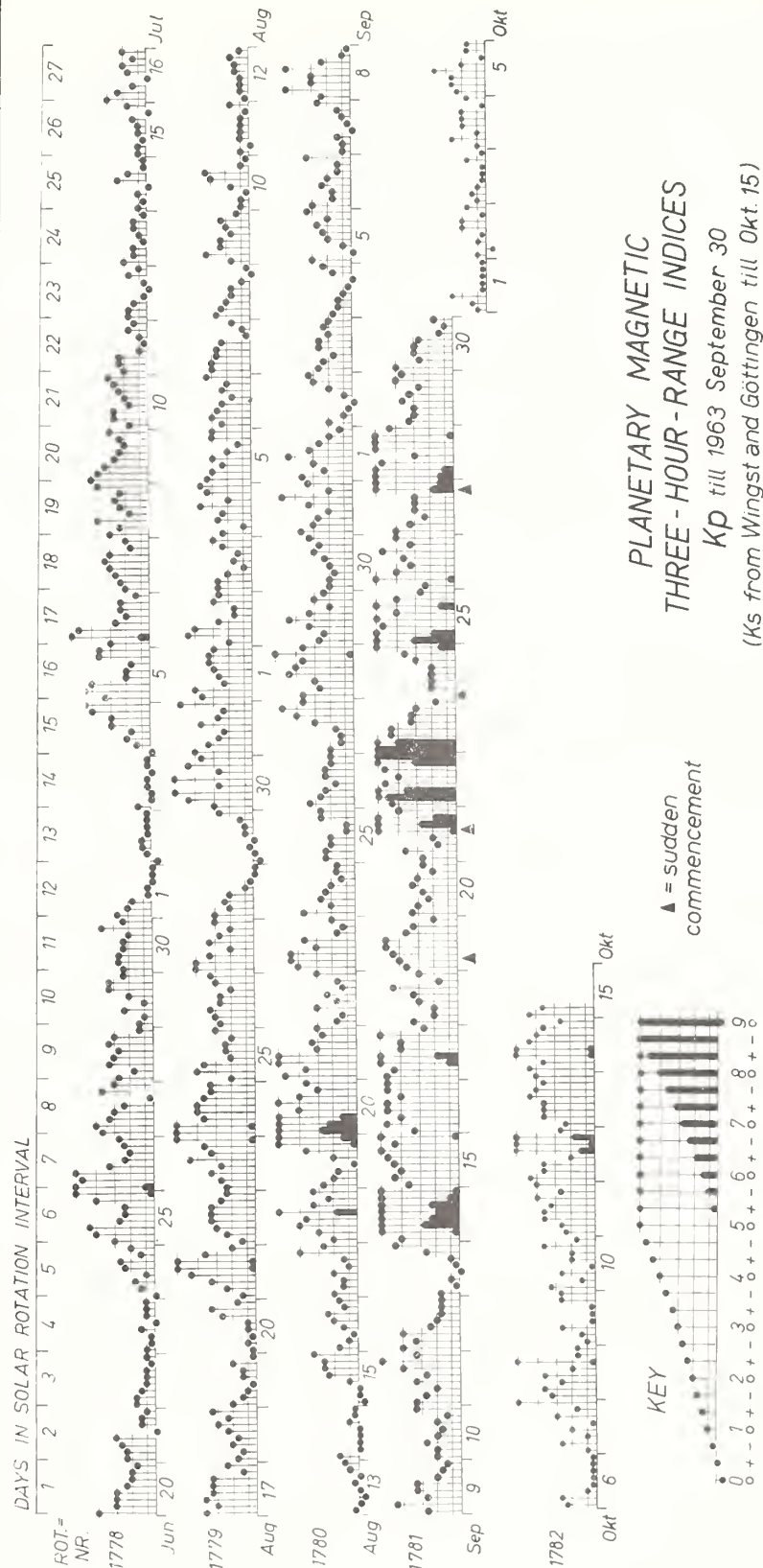
GEOMAGNETIC ACTIVITY INDICES

SEPTEMBER 1963

Sept. 1963	C	Values Kp								Sum	Ap	Final Selected Days	
		Three hour Gr. interval											
		1	2	3	4	5	6	7	8				
1	0.8	4-	2+	3o	4+	3+	3-	2o	1+	23-	15	Five Quiet	
2	0.5	2o	1o	1-	0+	1o	2o	3o	3+	13+	8		
3	0.6	3-	2+	2-	3-	3-	2o	2+	2o	18+	9		
4	0.3	2-	1+	1+	1o	1-	0+	2-	2+	10+	5		
5	0.6	3o	0+	1o	2o	2+	3-	2o	3+	17-	9		
6	0.5	3o	2-	2-	2+	2o	1+	1+	3+	17-	9	6	
7	0.2	1o	1o	1+	0+	1-	1o	1+	3-	9+	5	7	
8	0.8	2+	4+	3o	3o	4+	2+	1o	1-	21o	15	13	
9	0.9	3-	4+	3-	3+	3+	2o	2-	1+	21+	14		
10	0.5	2o	2o	3-	2o	2-	2o	1+	3+	17o	9		
11	1.1	3+	3-	2o	3+	3-	4o	5o	3+	26+	20	Five Disturbed	
12	0.7	4o	3+	4o	2+	2o	2-	2-	2-	21-	13		
13	0.7	2-	1-	1o	0+	1-	1o	3-	4+	12+	8		
14	1.8	4o	5+	7o	7-	6+	7-	6-	5+	47o	82		
15	1.4	4-	4+	4o	4+	5-	5o	4+	5+	36-	38		
16	1.3	3+	5-	4o	5-	5-	4o	5-	5-	35-	33	22	
17	1.4	5-	4+	6-	6+	4o	4o	5o	3-	37-	43	23	
18	0.9	3+	2o	2o	3o	3+	4+	2-	3o	23-	15	25	
19	1.2	4-	4o	4+	5-	5-	4-	3+	2o	30+	26	28	
20	0.8	3+	3o	2+	3-	3+	3o	2o	3-	22+	13		
21	1.5	3-	4-	2-	2o	5+	7o	6+	4o	33-	44	Ten Quiet	
22	1.9	4+	8+	8-	5-	4o	5-	7+	9-	50-	126		
23	1.7	9-	8o	4+	4+	3+	3+	3o	2-	37-	78		
24	1.0	0o	2o	2o	2o	2o	3o	4-	6o	21-	18		
25	1.6	7+	6+	5-	5o	4o	6o	4o	3-	40o	60		
26	1.2	2+	5+	4o	3+	4-	5-	3+	4o	31-	27	4	
27	1.3	4o	3+	2+	3o	3o	3o	6+	6o	31o	34	5	
28	1.6	6o	6-	5-	3o	5o	5o	5+	4+	39o	48	6	
29	1.0	3+	3o	3o	4-	3+	3-	4o	4-	27-	19	7	
30	0.7	4o	3-	3o	3o	3-	1+	1o	2-	19+	12	10	
Mean:		1.02								Mean:		28	12
													13
													30

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Erratum: The mean Ap for December 1961 should be 12, not 26, as published in table VIa CRPL-F 210 Part B, issued February 1962.



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NORTH ATLANTIC

[illegible]

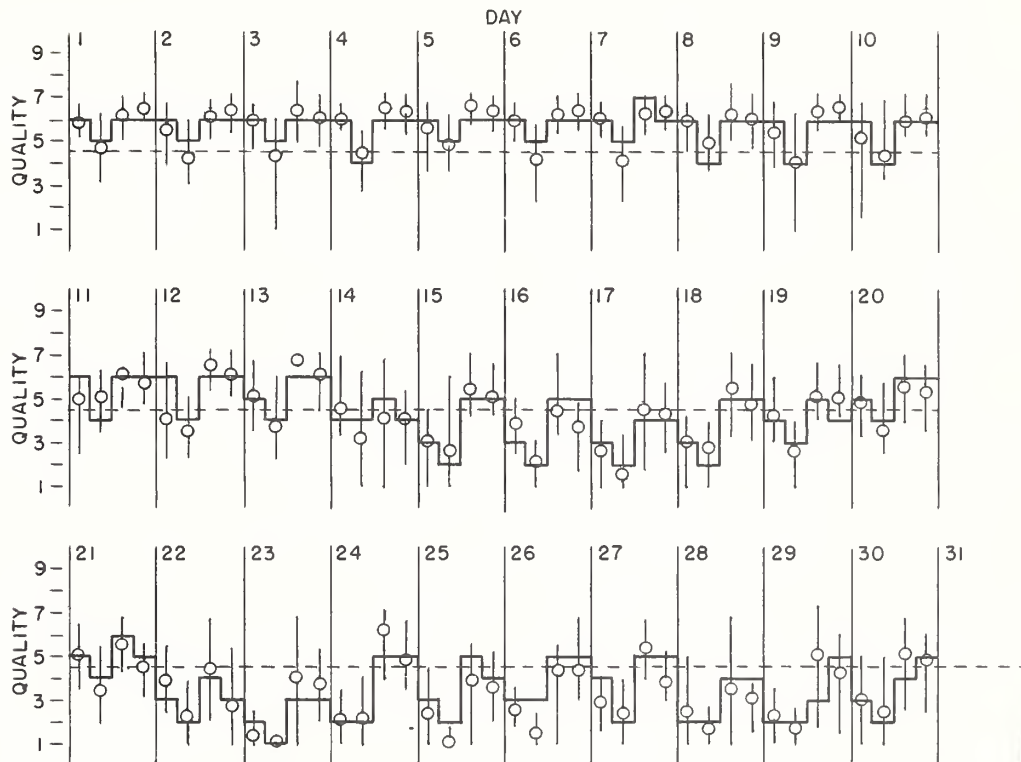
COMMENCE • STANDARDS • GOVERN

NORTH ATLANTIC

SEPTEMBER 1963

— Short-term forecast
 o Quality figure

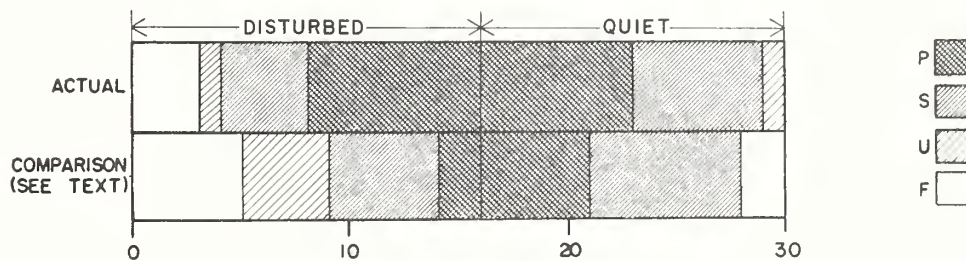
| Range of reports



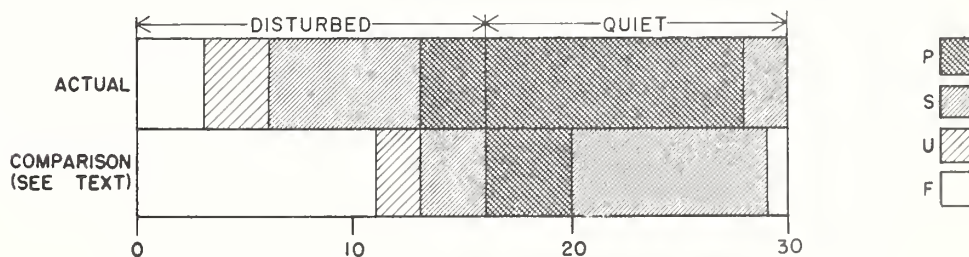
Outcome of advance forecasts--final estimates (1 to 7 days ahead)

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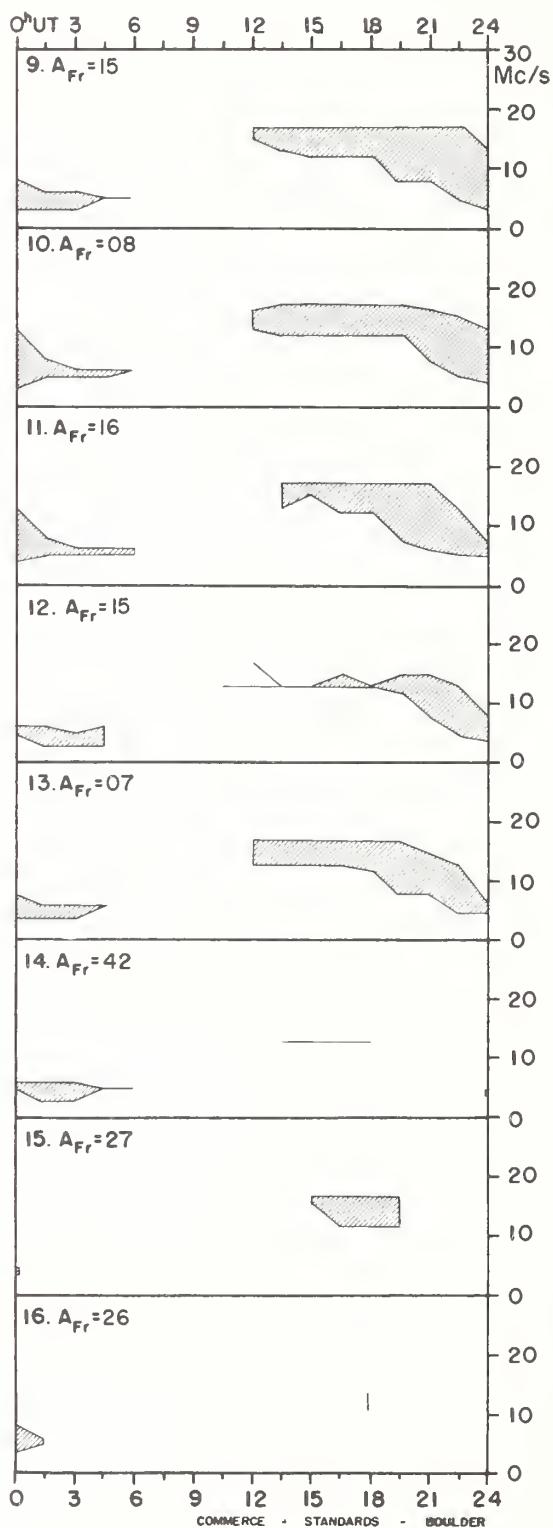
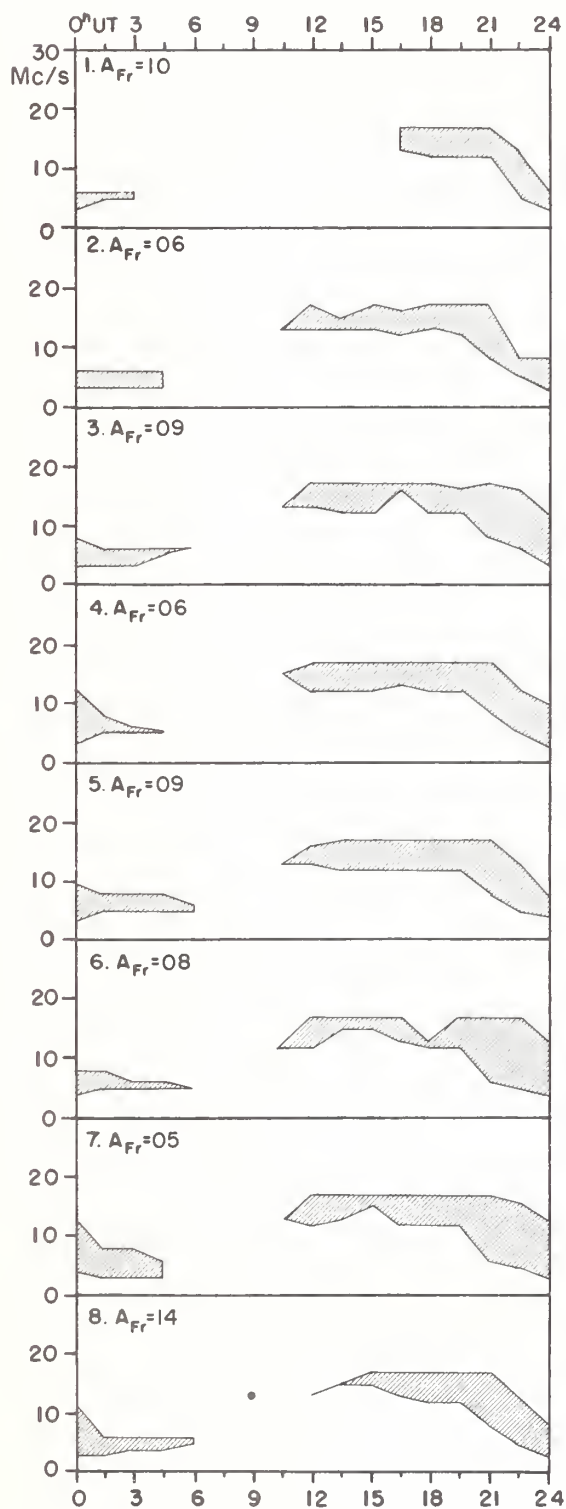
NORTH ATLANTIC



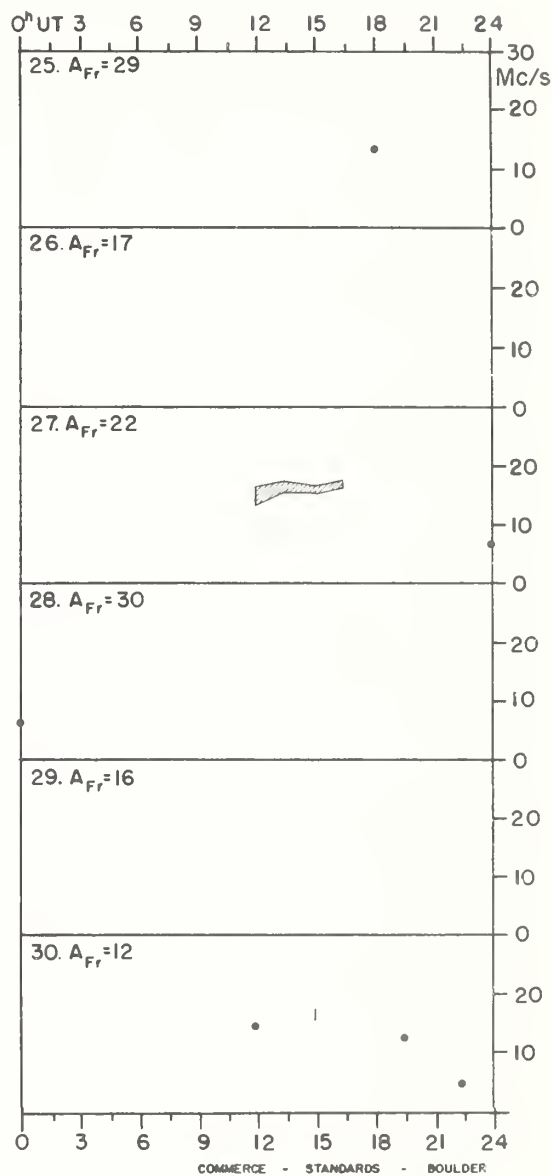
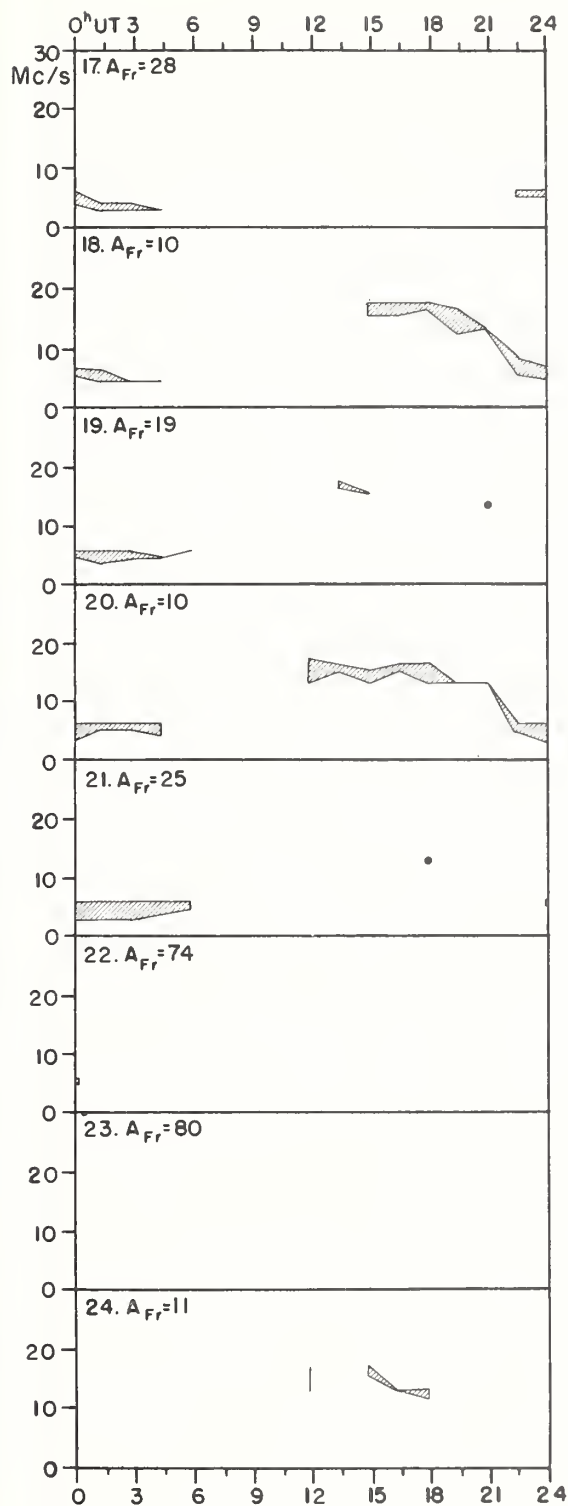
NORTH PACIFIC



SEPTEMBER 1963



SEPTEMBER 1963



Adapted from Observations by Deutsches Bundespost

VIIIa

IQSY ALERT PERIODS
INTERNATIONAL URSIGRAM
AND WORLD DAYS SERVICE

OCTOBER 1963

OCT. 1963	TIME OF ISSUE, UT	ADVANCE GEOPHYSICAL ALERT	WORLDWIDE GEOPHYSICAL ALERT			
			NO.	TYPE	TIMING	ELABORATION
7	0110	Sac Peak, Solar Flare 06/2219Z				
10	0400		1	Magnetic Storm	Expected	
11	0400		2	Magnetic Storm	Expected	
12	0400		3	Magnetic Storm	Expected	
15	0400		4	Solar Activity	Exists	
16	0400		5	Solar Activity	Exists	
17	0400		6	Solar Activity	Exists	
19	0400		7	Solar Activity	Exists	East Limb
20	0400		8	Solar Activity	Exists	East Limb
21	0400	Ottawa, Solar Flare 21/1330Z	9	Magnetic Storm	Expected	
21	1355					
22	0400		10	Solar Activity Magnetic Storm	Exists Expected	
22	1637	Climax, Solar Flare 22/1409Z				
23	0400		11	Solar Activity	Exists	Flares
24	0400		12	Solar Activity Magnetic Storm	Exists 24/00XXZ	
			13	Solar Activity	Exists	
25	0400		14	Magnetic Storm Solar Activity	Exists Exists	
26	0400	Ottawa, Solar Flare 26/1530Z				
26	1557					
27	0400	Manila, Solar Flare 28/0158Z	15	Solar Activity	Exists	Flares
28	1627					
29	0400	Ft. Belvoir, Magnetic Storm- 29/13XXZ*	16	Magnetic Storm	Expected	
29	1950					
30	0400		17	Magnetic Storm	29/13XX*	

* Later determined that this disturbance began suddenly 29/1359 UT.

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